ENGINEERING NEWS-RECORD

Bridge is redesigned in midstream p.34

A McGRAW-HILL PUBLICATION

STEVENS HALE
UNIVERSITY MICROFILMS
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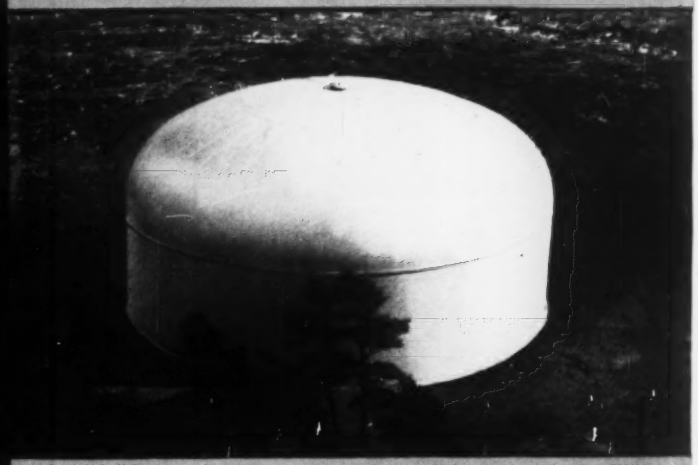
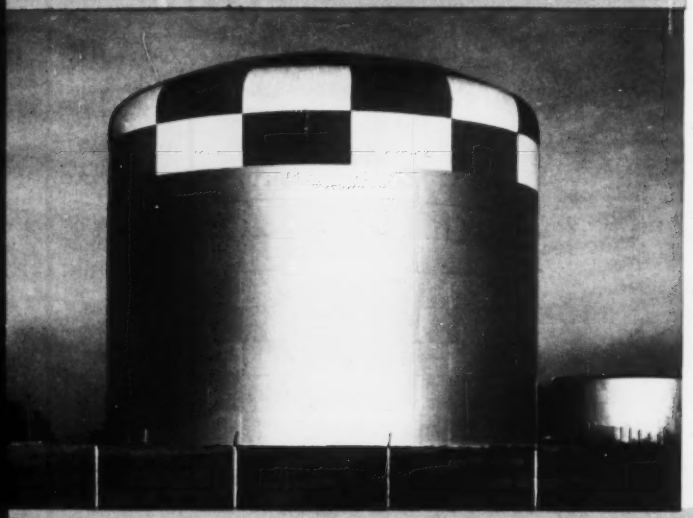
ANN ARBOR MICH

Reservoir, 4,000,000 gallons. Dia. 120', ht. 48'. Bangor, Maine.



Reservoir, 7,268,000 gallons. Dia. 116', ht. 95'. Mifflin Township, Pa.



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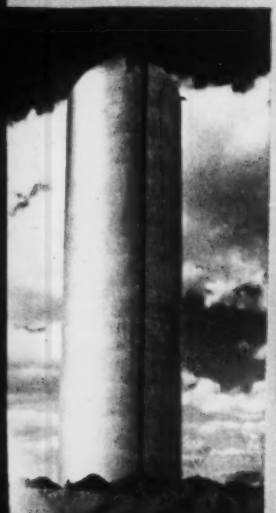
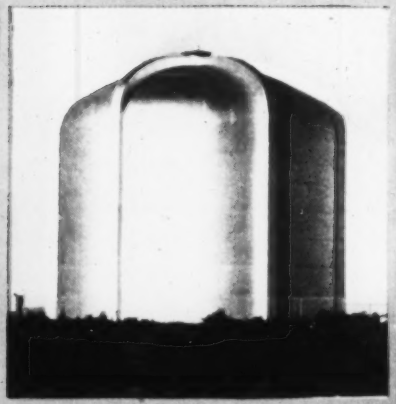
Standpipe, 500,000 gallons. Dia. 29'6", ht. 100'. West York, Pa.



Reservoir, 300,000 gallons. Dia. 42', ht. 29'3". Liberty, N.Y.

Reservoir, 2,220,000 gallons. Dia. 80', ht. 51'. Midland, Texas.



Standpipe, 225,000 gallons Dia. 22', ht. 80'. Arlington County, Va.

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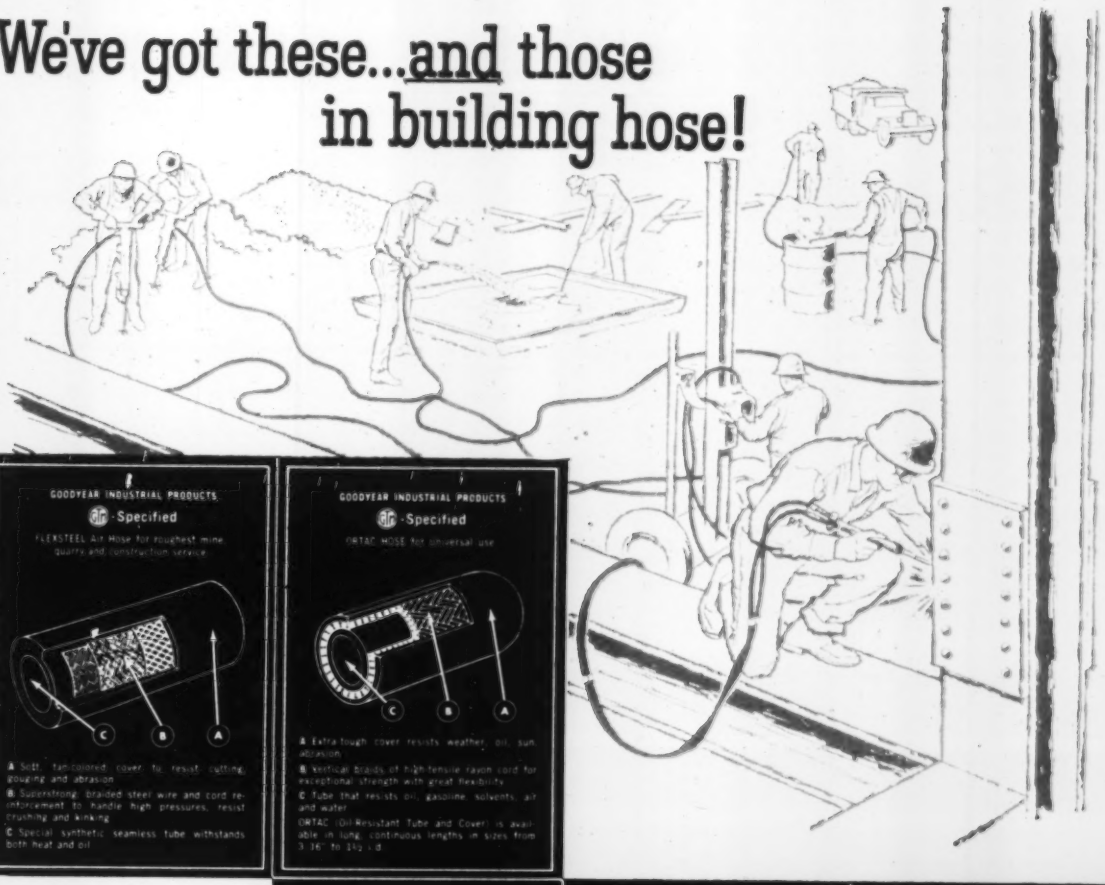
We've got these...and those in building hose!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A Soft, tan-colored cover to resist cutting, gouging and abrasion
B Superstrong, braided steel wire and cord reinforcement to handle high pressures, resist crushing and kinking
C Special synthetic seamless tube withstands both heat and oil
GOODYEAR INDUSTRIAL PRODUCTS
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ORTAC HOSE for universal use
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C Tube that resists oil, gasoline, solvents, air and water
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GOODYEAR INDUSTRIAL PRODUCTS
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C Special nonporous tube resists alkali or slightly acid water
GOODYEAR INDUSTRIAL PRODUCTS
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SPIRAFLEX Welding Hose for oxyacetylene welding, cutting, chipping
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B Superstrong rayon braid reinforcement
C Nonporous, nonblooming, nontaking tube
GOODYEAR INDUSTRIAL PRODUCTS
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FLEXSTEEL Steam Hose for high pressures and temperatures in severe service
A Extra-tough cover resists heat, aging and abrasion
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C Extremely heat-resistant tube

HIGH pressure or low—for air, water, steam, oil or gas—the smart choice in hose is Goodyear.

For Goodyear hose is built for builders: Its cover is super-tough to resist rough handling. It's heavily muscled with high-tensile cord or steel reinforcements. It resists kinking or crushing. Yet it's flexible and easy to maneuver.

Wouldn't it pay you, then, to insist on Goodyear quality on your next hose-using job? Check with your Goodyear Distributor for details on the special line that's designed to meet every contracting need. Or write Goodyear, Industrial Products Division, Akron 16, Ohio.

IT'S SMART TO DO BUSINESS with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."

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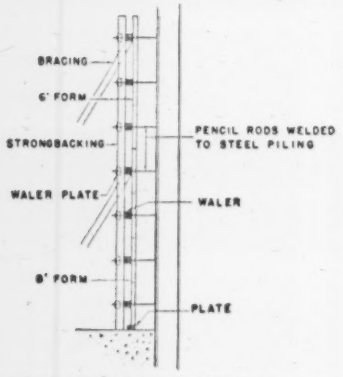
Best Method to Pour 750 Ft. Retaining Wall

Symons Forms, Sheet Piling and Pencil Rod Ties

How to pour a 750 foot lake retaining wall with thickness from 12 to 20 inches and 13 ft. high, faster and more economical. S. N. Nielsen Construction Company, Chicago, had that problem on a 600 unit apartment on Lake Michigan shoreline. Since a fixed core



could not be obtained while using sheet piling only, the superintendent used Symons Steel-Ply Forms with sheet piling and pencil rods as ties.

Was this method a success? After 250 feet of wall had been formed, poured and stripped, the forming costs were computed at 12 cents a square foot.

Contractors are finding almost as many uses for Symons Forms as there are jobs to bid on. It will pay you to send for our FREE form literature. And Symons Forms can be rented with purchase option.

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26 NORTHWESTS for FRAZIER-DAVIS Construction Co., St. Louis, Mo.

HERE'S a new Northwest Model 95 on a waterside job in St. Louis, Mo. This big rig is the 26th Northwest bought by Frazier-Davis Construction Co. Frazier-Davis has used Northwest Cranes for years. They know what Northwest Cranes can do, and 25 repeat orders make a testimonial to Northwest performance that goes far beyond advertising claims.

You'll find these big 95 lifting cranes the most versatile in the 50-ton class. On your lifting jobs, you have the smooth booming that comes with the Northwest Independent High Speed Boom Hoist, independent in operation of all other machine functions and power controlled both up and down. You have ease of operation and the true feel of the load made possible by the Feather-Touch Clutch Control. It brings you the accuracy for setting high steel and the delicacy of control for setting a highly stressed concrete beam.

Uniform Pressure Swing Clutches take the jerks and grabs out of swinging and bring greater smoothness to handling long booms. If you need a third hoist line there is the Northwest 3rd Drum. You have greater mobility, stability and visibility. All the features you require to make an erection job easier are either standard equipment or available.

Bring yourself up to date on these and other Northwest advances in design before you buy a crane. A Northwest man will be glad to call.

C-95-23-LC

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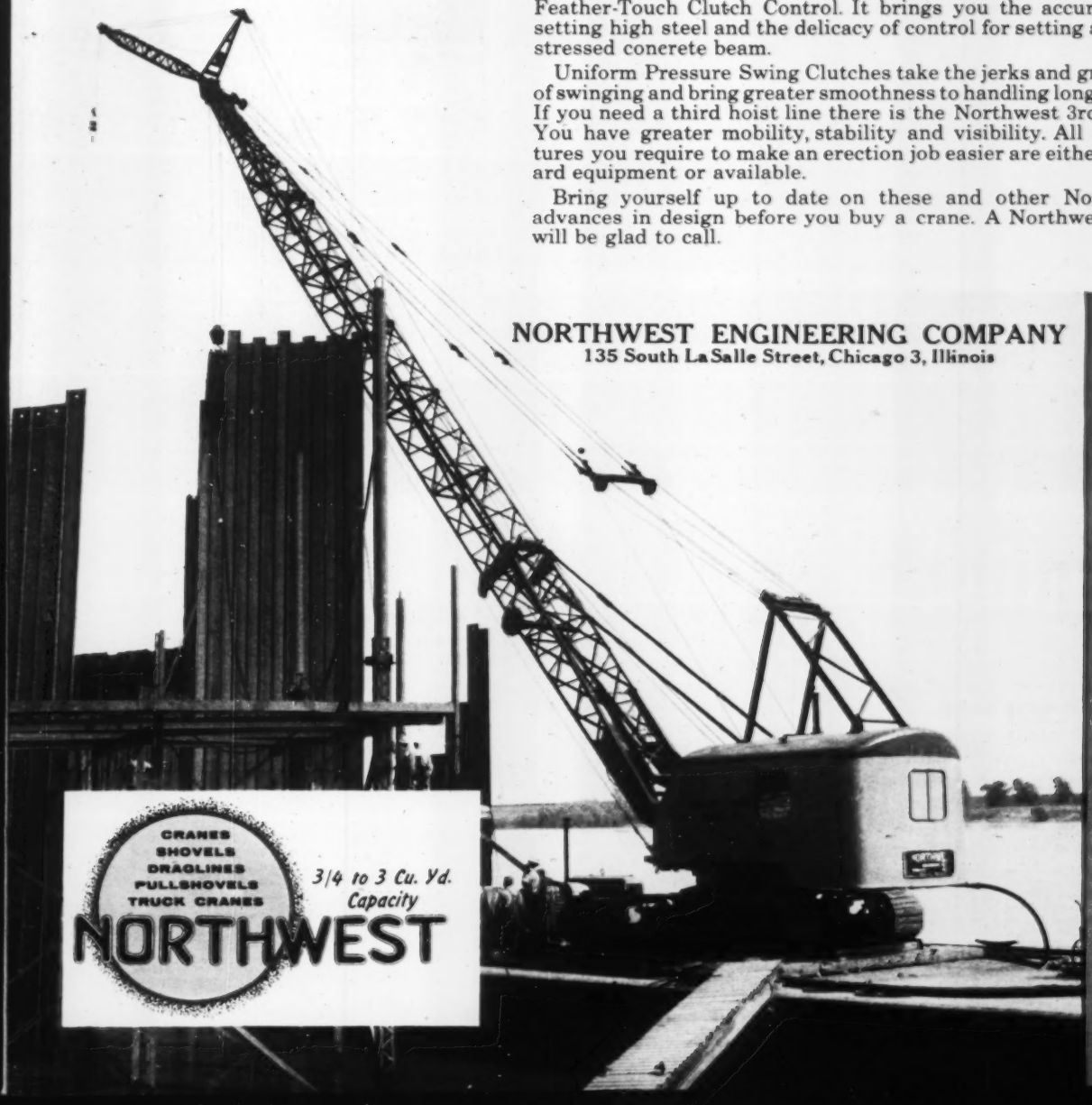
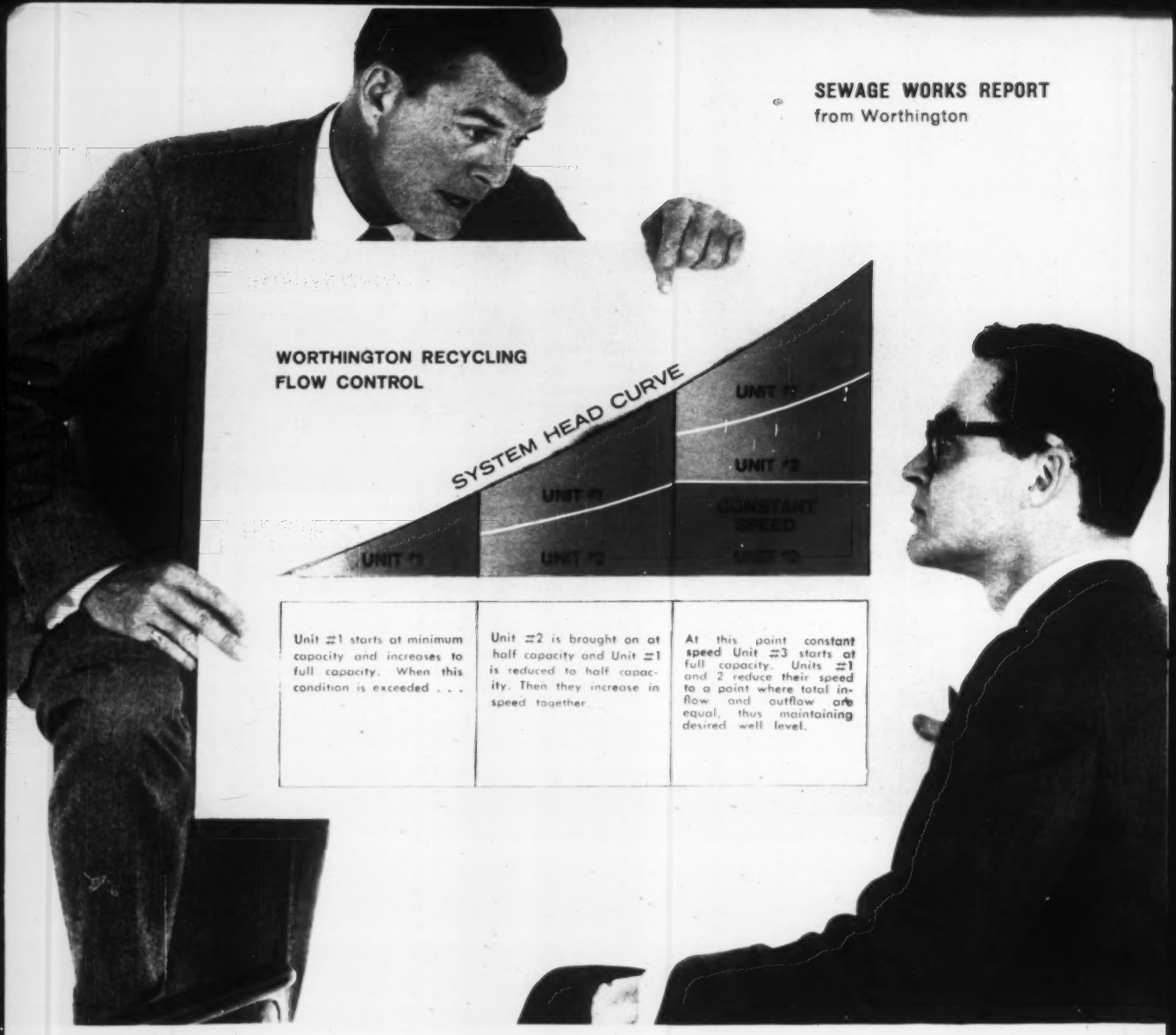


SEWAGE WORKS REPORT
from Worthington


WORTHINGTON RECYCLING
FLOW CONTROL
SYSTEM HEAD CURVE
UNIT #1
UNIT #2
CONSTANT SPEED
UNIT #1
UNIT #2
Unit #1 starts at minimum capacity and increases to full capacity. When this condition is exceeded . . .
Unit #2 is brought on at half capacity and Unit #1 is reduced to half capacity. Then they increase in speed together.
At this point constant speed Unit #3 starts at full capacity. Units #1 and 2 reduce their speed to a point where total inflow and outflow are equal, thus maintaining desired well level.

Variable Speed

REDUCES SEWAGE PLANT COSTS

Why pay extra for variable speed pumping units in sewage plants?

Answer: it saves money in the long run. Here's how: (1) pumping rates are always closely matched to flow, (2) surges are avoided, (3) automatic pumping cuts costs by reducing the number of men needed, (4) the collecting well can be made considerably smaller because it can be designed for average instead of maximum flow.

The system that takes maximum advantage of the possibilities of variable speed operation is Worthington's Recycling Flow Control. Operated by a Worthington engineered control, the system maintains precise operation of variable speed pumps. The float control provides for the operation of a combination of variable and constant speed pumps simultaneously. How it works in a plant with two variable speed and one constant speed pump is shown above.

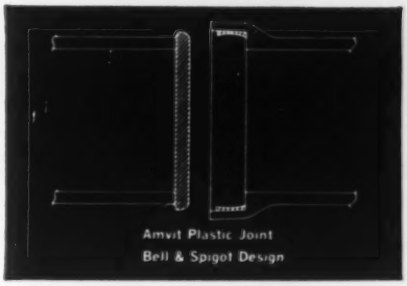
The Recycling Flow Control is the latest development of Worthington's continuous work in the public works field. It's another reason that to get the best and the latest you should come to Worthington first. Major public works products include: pumps, comminutors, compressors, engines, and turbines.

If you would like copies of engineering discussions of variable speed pumping for sewage works, write for Bulletins RP-952 and RP-1067. Address Worthington Corporation, Section 105-5, Harrison, N. J. In Canada, Worthington (Canada) Ltd., Brantford, Ontario.

WORTHINGTON

longer, stronger AMVIT Clay Pipe protects community health SIX WAYS

Clay Pipe is the Only Material Guaranteed to Serve Your Community Long After the Sewer Bonds are Paid Off

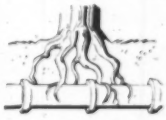


Each year thousands of taxpayers' dollars are wasted on "substitute" materials used in sewer lines. Failure and collapse of non-clay sewers endangers the health of the community. Sewers must be constructed of permanent materials for they carry to safe disposal thousands of tons of waste laden with dangerous and deadly bacteria.

Amvit* Jointed Clay Pipe gives decades of uninterrupted underground service. Neither joint nor pipe is affected by these factors:

1. ROOTS

force the pipe out of line and clog the system in search of moisture. Amvit is a compression joint on the ball and socket principle. The surfaces of both bell and spigot are in constant compression. Roots cannot enter the line.



2. CHEMICAL ATTACK

is from acid-laden, high temperature sewage, discharged from dishwashers, garbage disposal units and washing machines. Like the clay pipe, Amvit Joint is acid resistant and will not corrode or decompose like most substitute pipes.

3. FLOW LINE ATTACK

refers to that section of the pipe which lies between low and high water. Grease and scum tend to build up here and act as a solvent on certain synthetic substitute pipes. The design of the Amvit Joint assures that the pipe is self-centered at all times. This gives perfect alignment and self-cleansing.

4. EROSION

is the wearing out of pipe by abrasive action of sand and gravel. Soft pipes, such as those made of paper and coal tar, become scratched and roughened and tend to clog up. Because Amvit is a really tight joint, no foreign matter can possibly enter the line.

5. DECOMPOSITION

is the chemical breakdown of the component elements of the pipe. Only clay pipe resists decomposition. Like the pipe, the joint is unaffected by ordinary conditions of underground service.

6. RODENTS AND TERMITES

will gnaw away wrappings and coatings of composition pipe. Amvit Clay Pipe defies even the sharpest toothed rodent and is immune to termite attack.

For more information on how Amvit can help cut sewer project costs, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you for a new descriptive folder.

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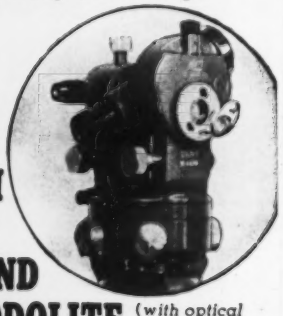

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- Exceptional portability and precision.
- Readings automatically... AT A GLANCE.
- Direct reading to 10". Estimation to 1". Average working accuracy —3-4 secs.
- Can be used with electric lighting unit for night work.

KERN CENTERING TRIPOD

Unique—a Kern first! Centers instruments in seconds with remarkable accuracy. Assures exceptional stability with ball-and-socket head, supporting instrument coupling.

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FACTORY TRAINED PERSONNEL

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The FINEST in SURVEYING EQUIPMENT

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120 Grand St., White Plains, N. Y.

Reader Comment

Defends Use of Consultants

SIR—Your article on Union Protests Consultant's Role (ENR Nov. 5, p. 106) is the third article which has been published in recent issues of your magazine based upon unproven and unfounded claims of savings in engineering or construction work by various bureaucrats in state and local agencies compared to the use of private enterprise: (1) How Michigan saved $3 million (ENR May 7, p. 22) (2) Cheaper by the County (ENR Oct. 1, p. 28) and (3) Union Protests Consultant's Role (ENR Nov. 5, p. 106).

I sincerely hope that the Governor of New Jersey has the native intelligence to ask for facts and not assumptions when he reviews the complaints of this group and asks them to verify their claims of economies to be gained by doing their own work. New Jersey is not the first state which has made statements of this nature and it would seem that it is high time that some of these claims be substantiated by factual data.

Consulting fees could actually be materially reduced if it were not for the time consuming delays for "approvals" and "red tape" involved in dealing with highway departments and governmental agencies in general. A lot of this delay and red tape is undoubtedly purposely planned to "punish" the consultant for, as the article states, "stifling the careers and full professional usefulness of highway department engineers." Time to engineers in private enterprise is money but to bureaucrats it means nothing more than a clock on the wall.

Another interesting statement in your article is that "the number of employees of these outside firms (consultants) doing state highway work in New Jersey exceeds the number of engineering employees of the highway department." Is this bad? Has the moral fiber of this generation sunken to where they all want security from the cradle to the grave? If we all work for the government, who is left to pay the taxes to support it? The implication seems to be that Norman Thomas would make an excellent candidate for President, at least in New Jersey.

I have always been curious about the so-called "career employee" in government. Actually, they are the exceptions rather than the rule. From my observations the majority of the personnel in governmental agencies have but one goal in life and that is to reach the age of 65 in the "land of the eight-hour coffee break" and to draw their paychecks every month in the process.

Another interesting statement in this article was the complaint that the number of engineering employees in the New Jersey highway department has not materially increased in the last five years. Again, is this bad? Would these complainants prefer to increase their staff so that the residents of New Jersey could have the pleasure of constructing a new $5-million or $10-million office building to house them? Perhaps by this time they would also find need of buying their own planes and photogrammetric equipment, and of course, their own soils laboratory and drilling equipment. Why not, as long as they prefer to compete with private enterprise, buy their own bulldozers and earthmovers and go out and build the highways themselves? I think it is actually to the credit of the highway department officials that they have not taken this course.

If I sound bitter or critical, it is because I am. The consulting engineers in this country can point with pride to their achievements and record of performance. Except for a few stretches of Interstate Highway (which usually begin and end in a cornfield) the state highway departments have little to boast of. Contrast this with the toll roads which have been designed by private engineering firms. In my own state Illinois this contrast is even more pronounced. It took private consultants only 37 months to design, build and put into operation 187 miles of the Illinois Toll Road, yet the Congress Street Expressway, some 14 miles in length, being designed, engineered and supervised by governmental agencies, has been under construction for the last ten years and in all likelihood will not be completed for several more years.

These ideas and comments are not new. Most consultants have expressed these same opinions at one time or another, but usually only to one another. However, if unfounded charges such as those stated in your article continue to go unchallenged, the public can very easily be led down the primrose path to complete socialism and engineering will disappear as a profession.

DONALD A. WALSH
Chief Civil Engineer
Meissner Engineers, Inc.
Chicago, Ill.

(Reader Comment continued p. 12)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

To every contractor who has to make a profit this winter

Rugged trench hoe digs through blasted rock and frozen earth at height of Montreal's harsh Winter.

AT MINUS 25 degrees, Manitowoc 1¼-yd. hoe trenches 200 feet each 10-hour shift in frozen, blasted rock

Despite severe temperatures hovering between 20° to 25° below zero last winter, this 1¼-yd. Manitowoc Trench Hoe averaged 200' of dynamite-blasted rock and frozen earth each shift for Civil Construction, Inc. of Montreal, Quebec.

ROCK ALL THE WAY

The job involved two major sewer projects for the Corporation de Montreal Metropolitan (Metropolitan Commission for Public Works) covering over 22,000 feet of sewer trench budgeted at a total cost of $355,000. Each trench was excavated 10 to 12 feet deep, and 8 feet wide. Every foot of the job was in quarry rock that had to be blasted before the Manitowoc could move in to work.

NO REPAIRS

Taking the severe weather and tough digging in stride, the hoe put out top yardage that would have been good even under ideal working conditions — and with minimum service and attention. On this point Mr. Paul F. Tremblay, Vice President of Civil Construction, Inc., said, "We have spent almost nothing on repairs or maintenance for our Manitowoc hoe since acquiring it last Winter. At the same time, we spent over $28,000 in repairs and maintenance on our rigs of other makes. Yes, we are confident that this trench hoe will more than do its part in giving us profitable operation with a minimum of maintenance and repair costs."

Stabilize *your* profit picture this Winter with an excavator-crane that can keep the output "hot" even at minus zero temperatures. Get more information NOW about the big-yardage Manitowoc that best suits your business.

Manitowoc

SHOVELS 1¼-6 YDS. • CRANES 25-125 TONS

MANITOWOC ENGINEERING CORP.
(A subsidiary of The Manitowoc Company, Inc.)
MANITOWOC, WISCONSIN Dept. ENR

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Send complete information on:

- ☐ 1¼-yd. ☐ 1½-yd. ☐ 2-yd.
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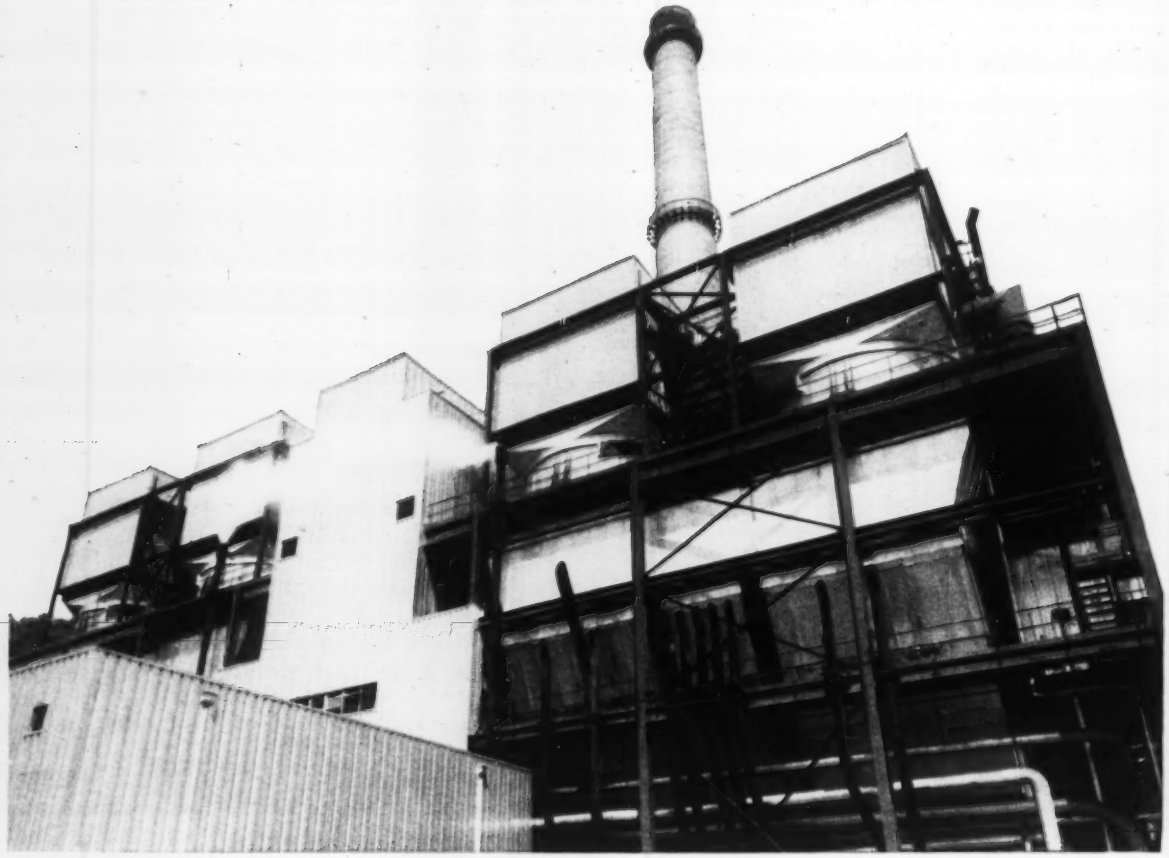
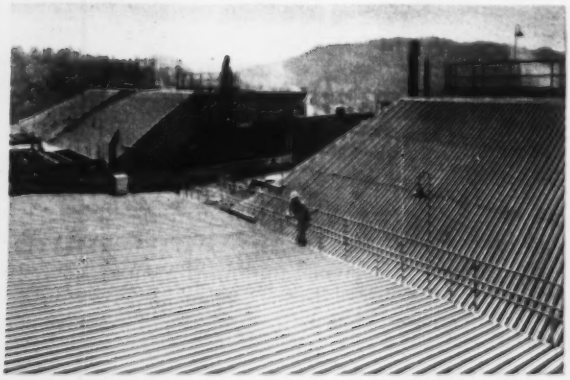
STREET _____

CITY _____ STATE _____

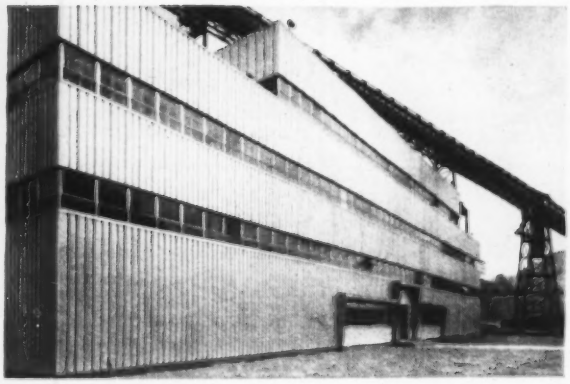


BOILER LAGGING. Use of lightweight, easily-assembled Kaiser Aluminum ribbed industrial siding for lagging of outdoor boilers reduced application time and costs over other protective materials. Because aluminum will not rust, crack or deteriorate in any climate, sizeable long-term savings in maintenance are expected at Clinch River. Aluminum's non-sparking, reflective advantages provide additional "plus."

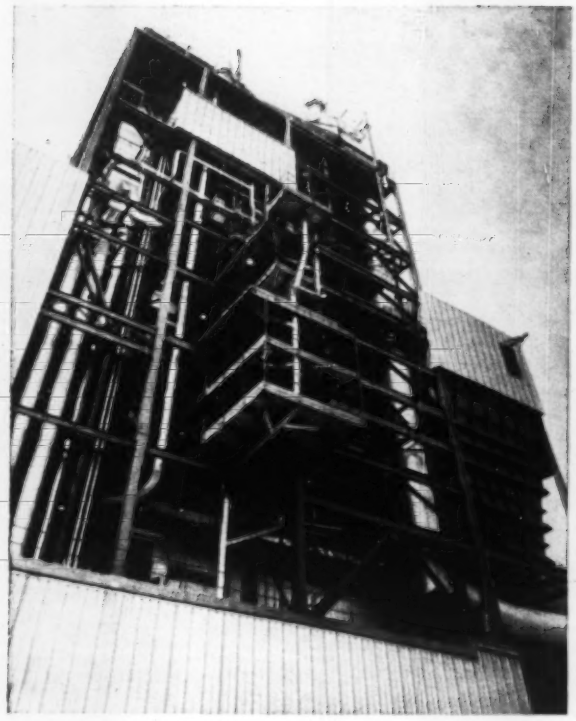


INSULATION FOR BREECHING, where gases are collected and vented to the stack, is protected by 0.032"-thick ribbed aluminum sheet. Aluminum's all-weather durability means insulation will remain sound indefinitely. No painting or other care is needed.

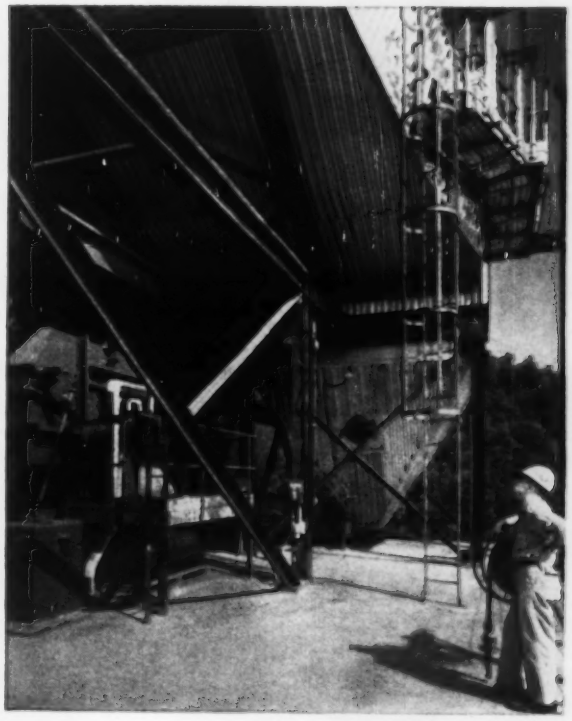
NEW CLINCH RIVER



SIDING. Plant, pump building and offices are sheathed with aluminum siding backed by glass fiber insulation—will retain their distinctive good looks for years at minimum upkeep. Other cost-saving aluminum applications: wall louvers, doors, windows, trim.



PIPE JACKETING is economically fabricated of corrosion-resistant aluminum—prevents costly deterioration of insulation around pipes, where temperatures can soar as high as 1,050°F. No protective painting required. Important upkeep savings predicted.



COLLECTION HOPPERS. Another instance of insulation protected the economical way—with aluminum. Despite bad weather these aluminum lagged fly ash hoppers should serve for many decades without losing their attractive appearance.

PLANT: PLANNED FOR SAVINGS!

The prospect of money saved through minimum upkeep prompts new power plant to pick corrosion-resistant building products of Kaiser Aluminum

Located on a 105 acre site in Carbo, Virginia, the new 450,000 kw. Clinch River Plant of the Appalachian Power Company is an outstanding example of Kaiser Aluminum at work for functional plant-wide economy. The project takes full advantage of the inherent attractiveness, durability, corrosion resistance, thermal properties and other characteristics of aluminum.

KAISER ALUMINUM*

THE BRIGHT STAR OF METALS

*T.M. Kaiser Aluminum & Chemical Corp.

SEE "MAVERICK" • SUNDAY EVENINGS, ABC-TV NETWORK
CONSULT YOUR LOCAL TV LISTING

MAIL COUPON FOR FREE BOOKLETS

Kaiser Aluminum & Chemical Sales, Inc.
Dept. IB-81, 1924 Broadway, Oakland 12, Calif.

- ☐ Please send me your Industrial Building Products Catalog, A.I.A. File No. 12-C.
- ☐ Please send me your Insulation Jacketing Materials & Methods Manual, A.I.A. File No. 37-D.
- ☐ Please have a representative call in person ☐ phone

Name_____

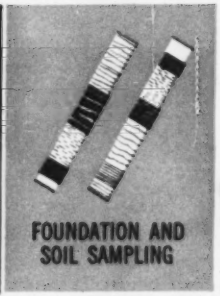
Address_____

City_____ Zone____ State_____

the only complete water service organization

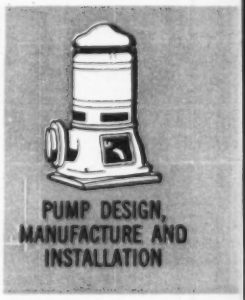
INITIAL SURVEYS, EXPLORATIONS, RECOMMENDATIONS

SITE SELECTION

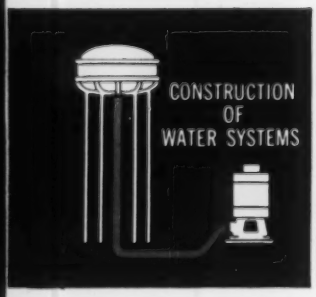

FOUNDATION AND SOIL SAMPLING

WELL DRILLING

WELL CASING AND SCREEN


PUMP DESIGN, MANUFACTURE AND INSTALLATION

Complete service means undivided responsibility


CONSTRUCTION OF WATER SYSTEMS

COMPLETE RESEARCH STAFF AND FACILITIES

MAINTENANCE AND SERVICE

CHEMICAL TREATMENT OF WATER WELLS

WATER TREATMENT

In an age of specialization there is a definite advantage in doing business with a company offering a COMPLETE SERVICE . . . providing *all* the services allied to the field of water.

Only Layne with its network of Associate Companies, and over 75 years of experience, all backed by Layne Research can offer its customers a complete water service which makes Layne unique in the industry.

World's Largest Layne *Water Developers*

LAYNE & BOWLER, INC., MEMPHIS

Offices and Factory • Memphis 8, Tenn.

LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

AUTOMATIC SAFEGUARDS KEEP JOY ROTARIES ON THE JOB

Let's face it . . . a portable compressor in the field takes a beating. The most reliable compressor you can buy is the one that is built to protect itself. That's why Joy has done everything possible to make operation and maintenance simple and automatic. Some examples: The built-in blow-down valve, the fail-safe safety circuit, the automatic drain and the thermal bypass valve.

When the compressor stops operating, the receiver blows down automatically. This eliminates the possibility that the operator will forget and try to start the machine under load.

All portables have a safety circuit, but on most of them a broken wire will make the circuit inoperative. On Joy rotaries, the compressor cannot be operated unless the safety circuit is complete and working perfectly—eliminating a possible source of major compressor damage.

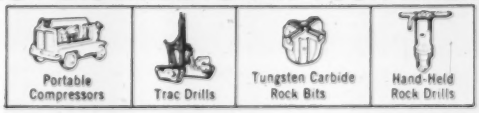
Every Joy rotary has an automatic drain system designed to prevent hydraulic lock. Standard equipment also includes a thermal bypass valve which prevents dry starts and eliminates moisture condensation.

Even common items like the oil filter have been given special attention. Instead of a filter that requires cleaning periodically, Joy rotaries have replaceable element filters—just put in a new element whenever you change oil.

The load control is as simple as possible. You just turn the knob on a calibrated dial to set the pressure you want.

Foolproof features like these are standard factory equipment on all Joy rotary portable compressors—a complete line from 125 to 900 cfm.

JOY CONSTRUCTION EQUIPMENT IS SOLD AND SERVICED BY THE JOY DISTRIBUTOR IN YOUR AREA

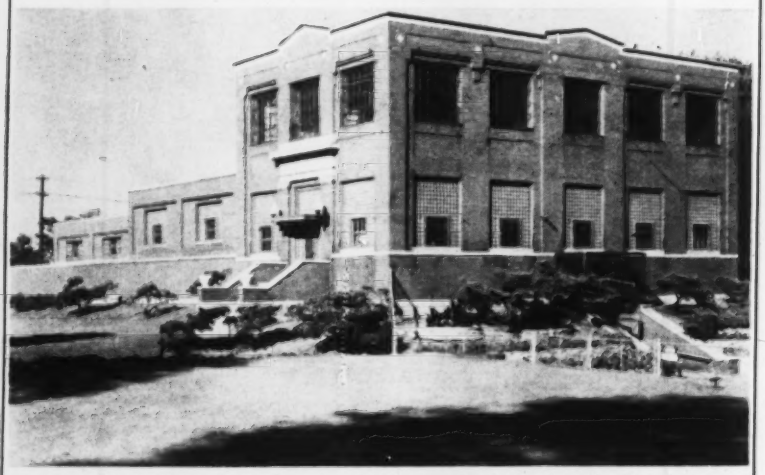


JOY

Joy Manufacturing Company
Oliver Building, Pittsburgh 22, Pa.

In Canada: Joy Manufacturing Company (Canada) Limited, Galt, Ontario

Use Northern Gravel for Rapid Sand Filter



C. F. Bufe, Superintendent, reports that the filtering material used in the Wyandotte, Michigan water plant was received as ordered from the Northern Gravel Company and has done a very satisfactory job for their city.

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity Coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed must be, in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 40 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Muscatine, Iowa

Box 307

Phone: Amherst 3-2711

. . . Reader Comment

Prestressed 'First'?

SIR—Surely you are exaggerating in saying that Taxiway T.3. at Biggs Air Force Base (ENR Aug. 20, p. 32) is the first operational taxiway in prestressed concrete.

To cite a few other pavements, there are the two runways at Orly (1946 and 1952), the runway and taxiway at Algiers (1953) and, on a smaller scale, the 5-in.-thick apron in front of our prestressed hangar at Gatwick (ENR Aug. 13, p. 32). All these have been thoroughly tested.

Our own experience with such pavements is that there is no problem in making them strong enough; the difficulty is rather in making them cheap enough. It is depressing to find each new venture arriving at the familiar conclusion that prestressed concrete is much too strong and too expensive.

If one may hazard a prediction, the taxiway you describe will probably add further confirmation to this unsatisfactory proposition.

A. J. HARRIS
Chartered Civil Engineer
London, England

Windows Without a View

SIR—In "Precast Window Frames Cover Hotel" (ENR Oct 22, p. 38) you feature these precast window frames but fail to mention who made them. I am sure I am not the only reader who would like to know.

A. R. KREHBIEL
The Carter-Waters Corp.
Kansas City, Mo.

Editor's Note: Subcontractor Otto Buchner & Co. cast the panels for the Denver Hilton Hotel. After studying the job, they elected to do the work at their home plant in Salt Lake City, trucking gravel from the site and panels back again.

For Your Calendar . . .

National Symposium on Reliability and Quality Control, Statler Hilton Hotel, Washington, D. C., Jan. 11-13. Write: E. F. Jahr, Sixth National Symposium on Reliability and Quality Control, Statler Hilton Hotel, Washington, D. C.

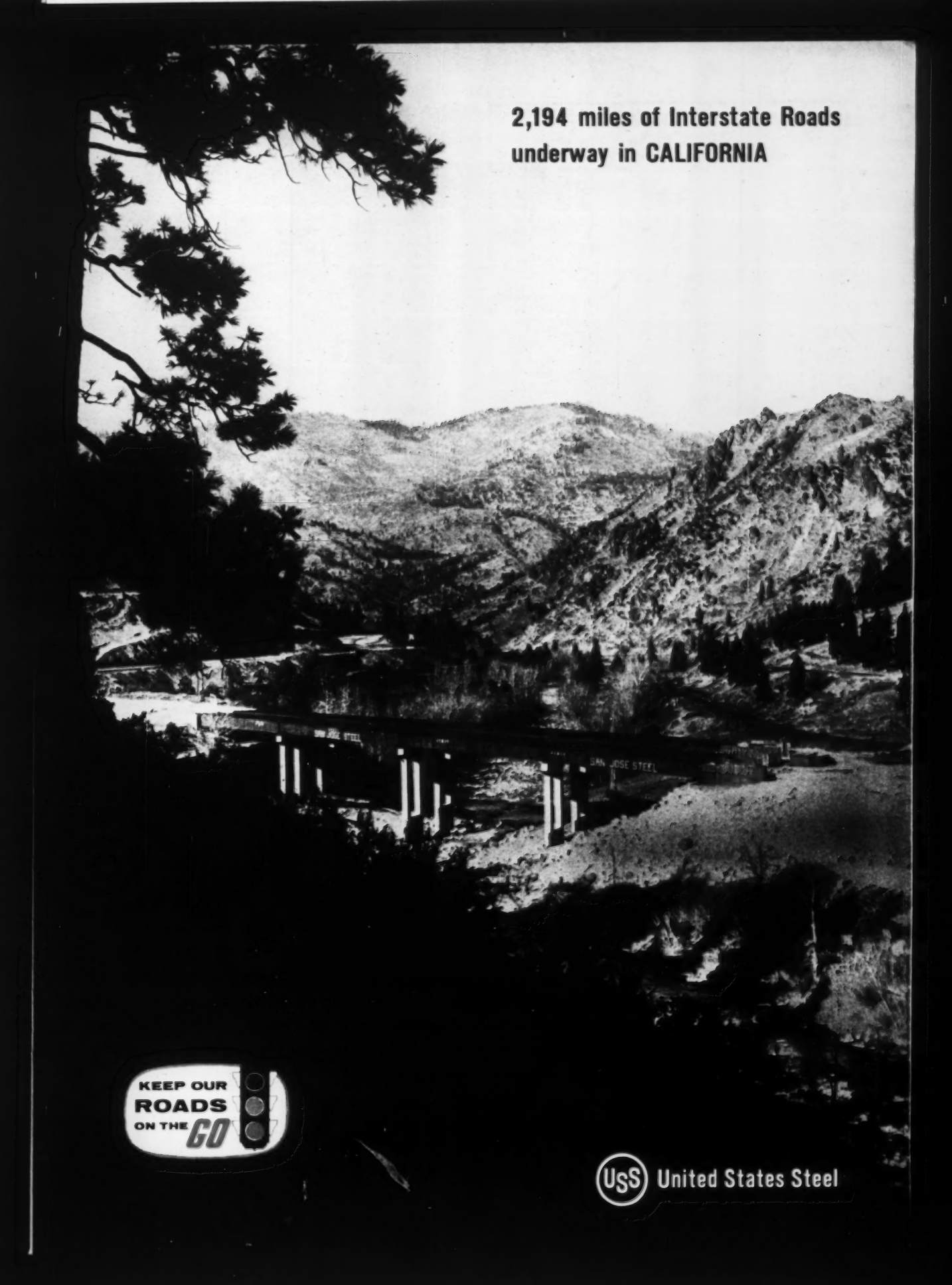
Highway Research Board, 39th annual meeting, Sheraton-Park Hotel, Washington, D. C., Jan. 11-15. Write: Fred Burggraf, Highway Research Board, 2101 Constitution Avenue, N. W., Washington 25, D. C.

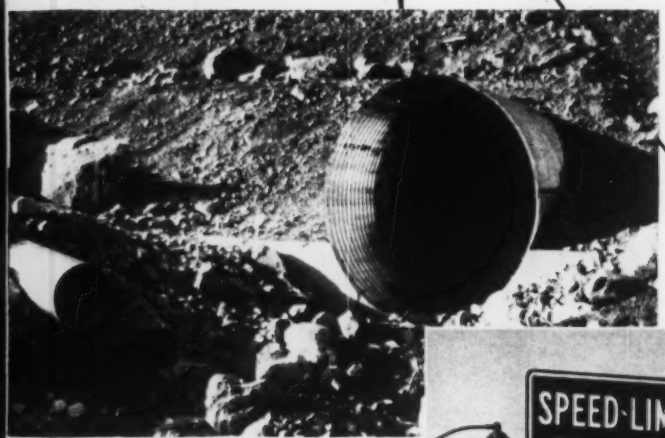
Society of Plastics Engineers', 16th annual technical conference, Conrad Hilton Hotel, Chicago, Ill., Jan. 12-15. Write: Society of Plastics Engineers, Inc., 65 Prospect St., Stamford, Conn.

Malleable Founders Society, semi-annual meeting, Hotel Sheraton-Cleveland, Cleveland, Ohio, Jan. 15. Write: Malleable Founders Society, 781 Union Commerce Building, Cleveland 14, Ohio.

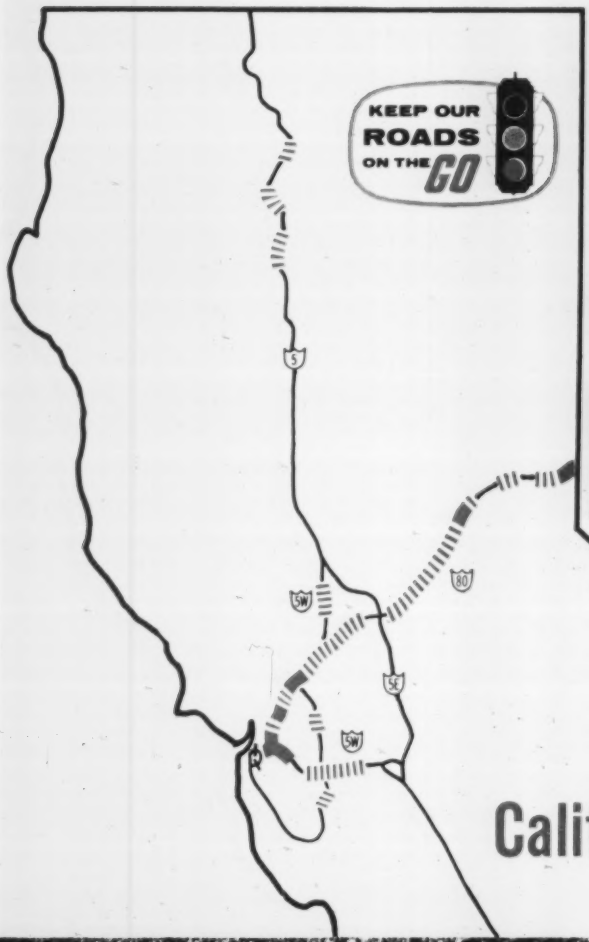
National Association of Home Builders, convention and exposition, Chicago, Ill., Jan. 17-21. Write: Carl F. Mitnick, NAHB, 1625 L St. N. W., Washington 6, D. C.

American Road Builders Association, 58th annual convention and 6th annual highway materials and services exhibit, Netherland Hilton Hotel, Cincinnati, Ohio, Jan. 18-21. Write: ARBA Housing Bureau, 714 Union Central Building, Cincinnati 2, Ohio.


2,194 miles of Interstate Roads
underway in CALIFORNIA
SAN JOSE STEEL
KEEP OUR
ROADS
ON THE GO
USS United States Steel



California speeds construction



Completed

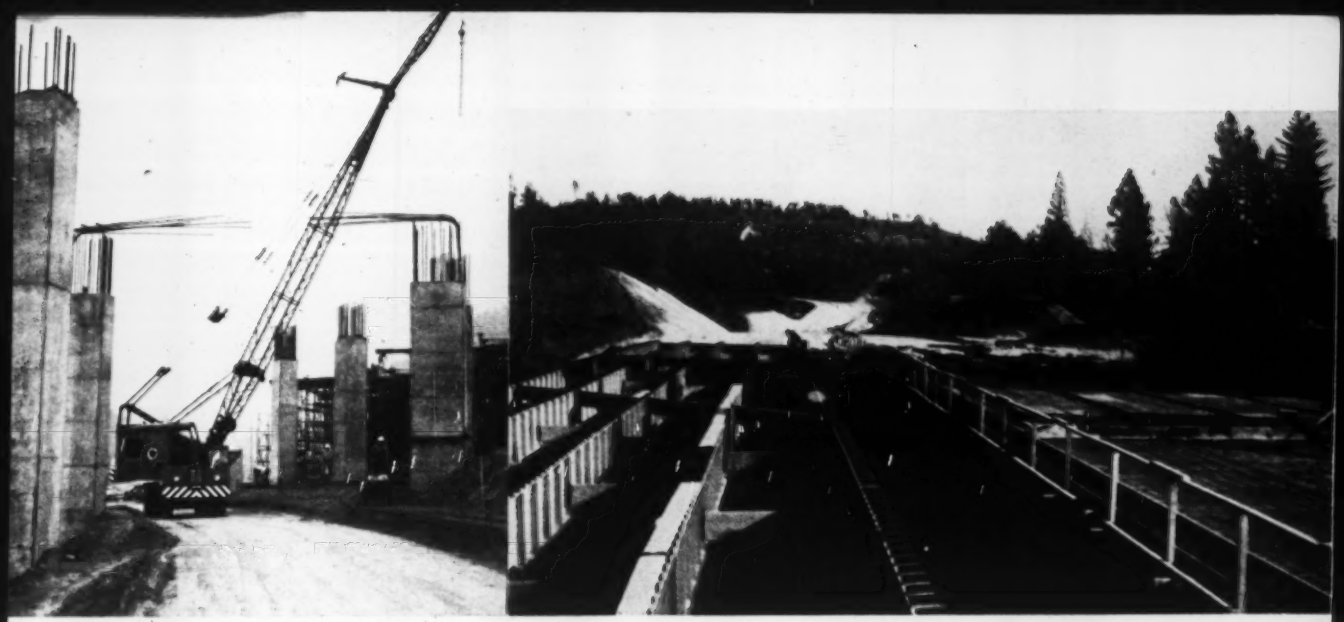
Partially completed or under construction.

Present highway to be made into Interstate.

These roads are going forward under the direction of: **Robert B. Bradford,** Director of Public Works and Chairman of the California Highway Commission; **G. T. McCoy,** State Highway Engineer.

Drainage for Interstate 80—(U.S. 40) USS Galvanized Culvert Sheets and sectional plate structures solve drainage problems under the Interstate Highway at Truckee, California. Here steel provided low-cost, rapid construction.

Steel signs, posts, and guardrail—Available from U. S. Steel are most of the basic products that produce long-lasting, low-maintenance signs and markers; uniformly coated galvanized steel sheets, steel plates and tubular sections for hot-dip galvanized posts, poles, and supports; USS *Vitrenamel* Sheets for porcelain enameled signs. Also shown here is USS *Western* Guardrail on the San Bernardino Freeway, Los Angeles.



Overpass at Albany—Steel girders will be placed on top of these steel-reinforced concrete columns to form an overpass at Albany, California. USS *Di-Lok* Concrete Reinforcing Bars are used for all types of concrete work; and Universal Atlas Cement Division of United States Steel, offers a wide variety of portland cements. *Tiger Brand* Wire Rope is used in cranes, pavers, shovels, ditchers, trenchers, derricks, mixers and road scrapers.

Steel Bridges at Magra—The USS *Di-Lok* Bars in the right-hand side of these bridges at Magra near Gold Run, California, are ready for concrete. The next step in the construction of the left-hand bridge is to place the decking on top of the continuous girder span.

# of 2,194 miles of Interstate Highways

with products from United States Steel

California's Highway Commission has planned 2,194 miles of Interstate Highways to be completed by 1975. 1,453 miles have already been located; 73 miles have been completed, and 170 miles are under construction. Several hundred miles of California's own Freeways are near to meeting the rigid requirements for the Interstate System; when they do, the number of *completed* miles will rise rapidly.

Steel is high on the list of products being used to speed construction on the eighteen highways in California's Interstate System: 3,186 bridges, overpasses, underpasses, and traffic-controlling clover-leafs will be built; 123 bridges are already completed and 194 are now under construction.

United States Steel supplies a complete line of products for highway construction: Structural carbon steel and special high-strength and constructional alloy steels for bridges; steel H-piles, sheet piling and tubular piles for bridge foundations; drainage products; reinforcing bars, welded wire fabric, cements, slag and other pavement construction products; wire rope, cable, tubing and special steels, and steel products for construction equipment; and a complete range of items including fence, beam and cable guardrail, steel for signs, markers, and other accessories. Write for the *free* 54-page booklet, "Keep Our Roads on the Go." This booklet lists all the products and services available from United States Steel to help you cut costs and speed operations in every phase of highway construction. United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

USS and trademarks in italics are registered by U. S. Steel

USS United States Steel

The highway market is served by the following divisions of United States Steel: American Bridge Division, Pittsburgh, Pa. • American Steel & Wire Division and Cyclone Fence Department, Cleveland, Ohio • Columbia-Geneva Steel Division, San Francisco, Calif. • Consolidated Western Steel Division, Los Angeles, Calif. National Tube Division, Pittsburgh, Pa. • Tennessee Coal & Iron Division, Fairfield, Alabama • Universal Atlas Cement Division, New York • United States Steel Supply Division, Steel Service Centers, Chicago, Illinois.

engine power
BY CATERPILLAR

How excavator repowering can be simplified

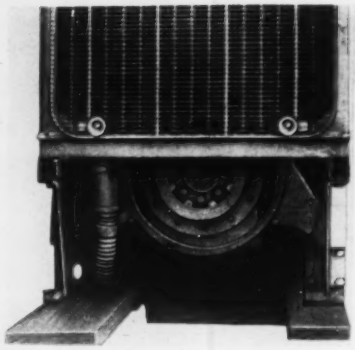
OFTEN a limited engine selection can make the job of repowering an excavator seem complex. It's true that an incorrect choice can make revamping costly. Adapting a poor choice can tie up equipment when it should be working.

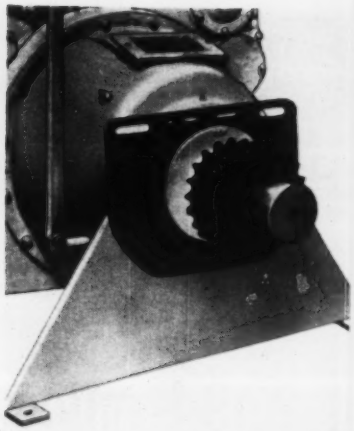
Caterpillar Engines have simplified repowering and have given equipment owners greater profit for over 25 years. Caterpillar makes a complete range of basic engine models from 50 HP to 730 HP requiring no extensive equipment redesign to repower a wide range of machines. Cat Diesels are planned to meet any repowering need . . . mobile . . . stationary . . . mechanical . . . electric . . . 50 or 60 cycle . . . combinations of mechanical and electric . . . natural gas engines in 7.5:1 and 10.5:1 compression ratios. And these engines are available with power transmission for *your* equipment.

When you get a Caterpillar Engine you get fast delivery. Repowering time is kept to a minimum. And you're sure to get the right engine for your machine, hence you're sure of getting improved performance. Repowering returns are high and usually come fast when you choose a Caterpillar Engine.

An experienced Caterpillar Dealer Engine Specialist can help you with repowering. He'll analyze your specific power needs. He'll make recommendations that can increase your machine's profitability. And he'll supervise installation.

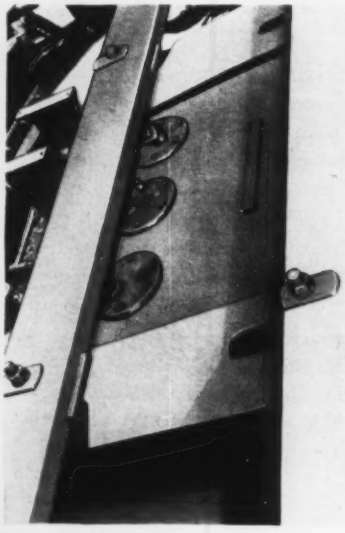
For more information write for the "Construction Equipment Repowering Packet" which outlines the many avenues of repowering profitability.

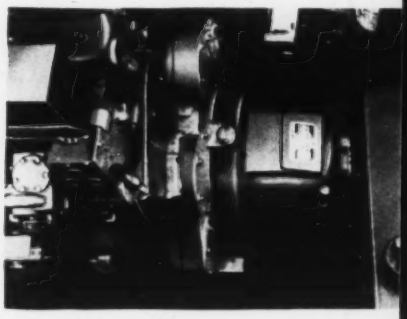




Photos show how easy repowering actually is with Cat Engines. A standard Caterpillar arrangement was selected for this shovel and set at 950 RPM to deliver 263 HP. The engine replaced had produced 215 HP.

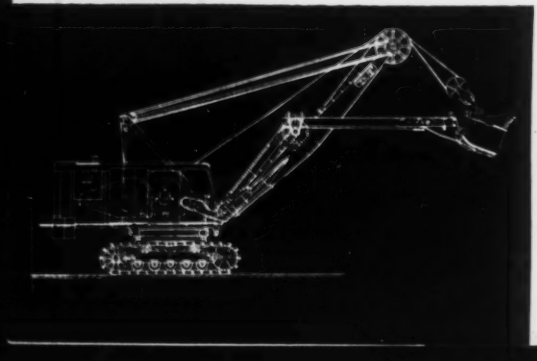
This is the clutch with sprocket drive and shaft support plate. Bracket was welded onto chain case to hold engine and case rigid. The radiator is 7" from the side of cab.





Conversion completed. The increased production, minimized downtime convinced owner to repower two additional machines.

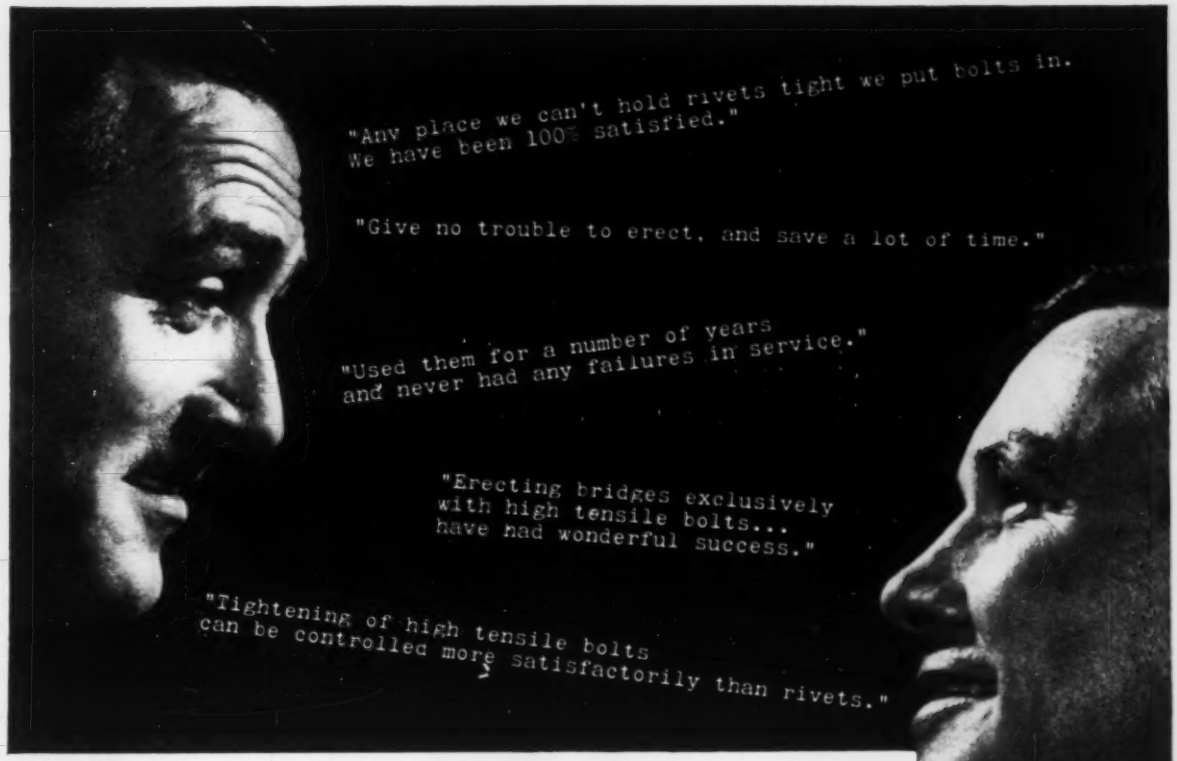
Engine was mounted on two 10", 20 lb. channels. Channels were cut to fit, allowing sliding room for clutch removal. Bolt holes were cut for base and engine mounting. Slight modification was done to chain case to clear end of stub shaft. A plug opening was made for greasing the clutch pilot bearing.

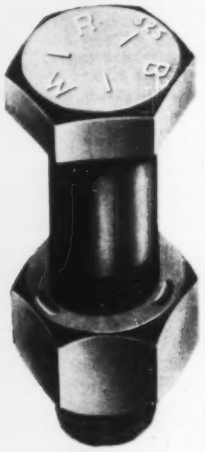


CATERPILLAR

Engine Division, Caterpillar Tractor Co., Peoria, Ill., U.S.A.

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.


"Any place we can't hold rivets tight we put bolts in. We have been 100% satisfied."
"Give no trouble to erect, and save a lot of time."
"Used them for a number of years and never had any failures in service."
"Erecting bridges exclusively with high tensile bolts... have had wonderful success."
"Tightening of high tensile bolts can be controlled more satisfactorily than rivets."



What they're saying about

High Strength Bolts

These quotes were recorded at a meeting of coal and ore dock men discussing high strength bolts in ore unloaders and bridges.

It's significant that where there's trouble with rivets, high strength bolts solve the problem. Good reason for this. Rivets do not always fully fill holes. This means a weaker joint. But *bolts* don't have to fill holes completely. Properly tightened, they prevent slippage and develop maximum shear strength of the connection.

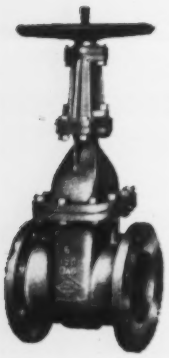
Moreover, even when *perfectly* installed, rivets can't compare in clamping force to RB&W High Strength Bolts. For example, a 1-inch rivet upon cooling will exert 20,000 pounds of clamping force at best. But a 1-inch bolt torqued tight will clamp with 42,000 pounds. And remember, the *higher* the clamping force, the *stronger* the connection becomes. Better able to withstand dynamic loads and *stay tight*, too.

Every fastening advantage is yours with RB&W High Strength Bolts . . . plus *certified* quality to ASTM A325, plus fine finish that facilitates installation, plus reliable source of supply. Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, New York.

RB&W
115th year

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. Additional sales offices at: Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco.

LARGEST INDEPENDENT PRODUCER OF HIGH STRENGTH BOLTS FOR CONSTRUCTION



In this **Split Wedge Gate**

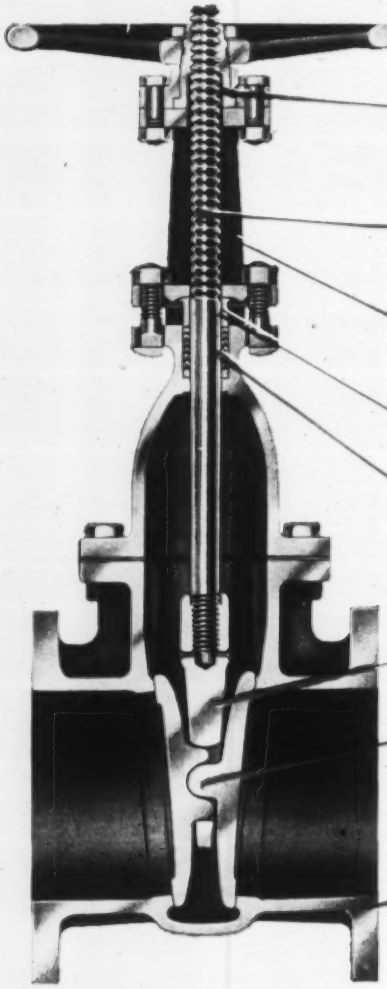
you can see why it pays to

Specify JENKINS for STAINLESS STEEL Valves, too

This picture shows the many points of excellence in the design and construction of Jenkins Fig. 1327 Split Wedge Stainless Steel Gate Valves. Compare them with any valve you know. You'll conclude that it's hard to beat Jenkins at making valves, no matter what the material.

But no picture can show the quality of the castings . . . the precision machining . . . the rigid inspection and testing that have gone into this valve. All of these are as important as design and metal alloys in assuring long, dependable, economical valve service. And, all of them are up to the peak standards for which Jenkins has been known for almost a century.

SEND FOR NEW CATALOG of Jenkins Stainless Steel Valves. You'll find in it the patterns you want, in a choice of alloys that satisfy the requirements of practically all corrosive services. Also, you'll see that these Jenkins valves meet valve industry specifications and the high standards established by the leading users of stainless steel valves. Jenkins Bros., 100 Park Avenue, New York 17.



WHEEL of high strength malleable iron designed for firm grip and easy operation.

YOKE BUSHING, easily renewable. Made of bronze, for ideal thread engagement with stainless steel spindle, to prevent seizing or galling of spindle threads. Bushing of stainless steel is optional.

SPINDLE has long thread bearing surfaces with correct lead for easy, tight closing. Screws into wedge carrier, then secured by a stainless steel pin.

YOKE BONNET has liberal space between yoke arms for easy access to packing box. Precision machined flange face assures uniform contact with gasket for a tight body-bonnet joint.

GLAND consists of two pieces — gland flange and gland follower — eliminates binding of follower in case gland bolts are tightened unevenly.

PACKING of Chevron-type Teflon in large packing box prevents leakage. Only a minimum load is required on gland, extending service life of packing.

WEDGE CARRIER connects wedge to spindle and raises or lowers it. Husky in size to stand any operating strains.

SPLIT WEDGE is the ball-and-socket design which automatically adjusts to the tapered seating surfaces for positive shutoff. The discs, revolving freely in the wedge carrier, produce a self-cleaning action on seating surfaces and reduce possibility of galling and seizing.

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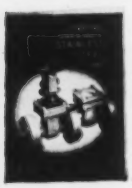

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THE CONSTRUCTION WEEK

TRAVEL PAY OUT, PREMIUM IN?—Arizona building trades unions want the Associated General Contractors to replace present travel and subsistence pay contract provisions with a premium pay clause. Out-of-state contractors now get a competitive advantage, since the Davis-Bacon Act covers basic wage payments only. The change would mean out-of-staters would have to figure on the premium pay costs in their bids—now they don't have to contend with subsistence and travel provisions.

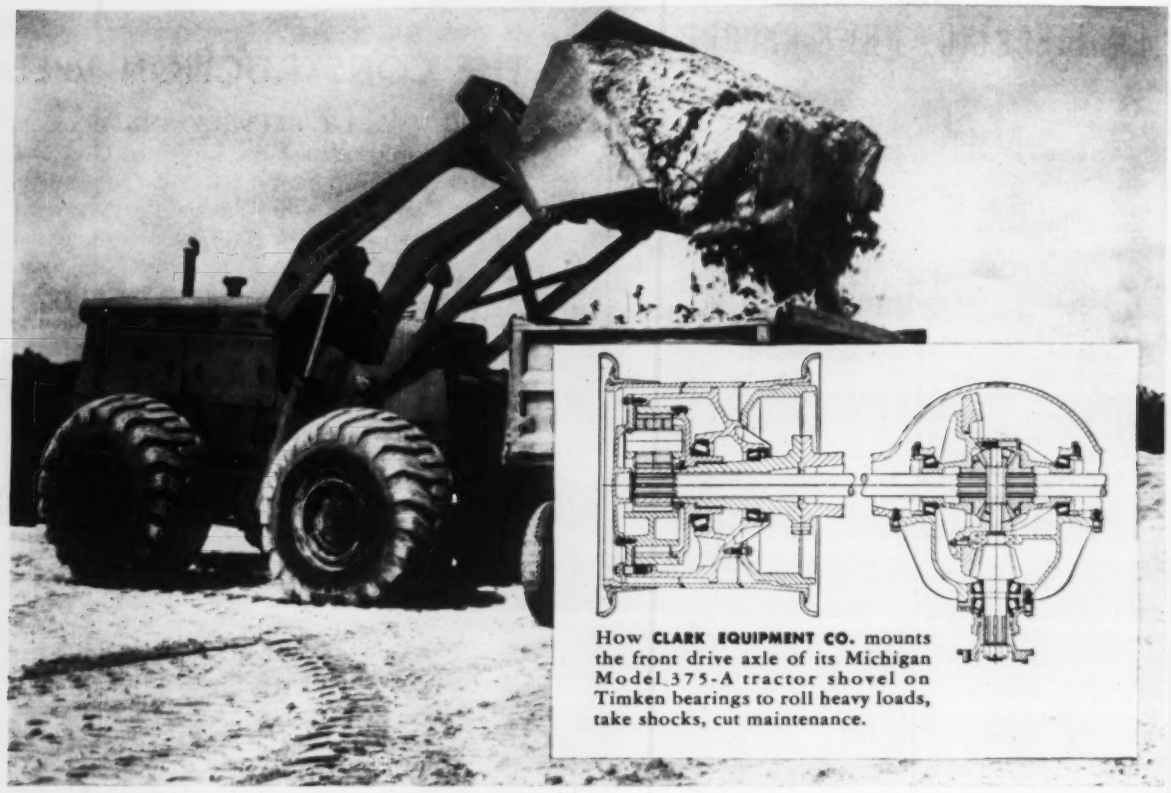
NO SALE—Mexicans haven't shown much enthusiasm for the construction equipment on display at the Russian exhibition in Mexico City. The Russians are quoting bargain prices, but parts and service problems are a major drawback. Although advance publicity said there would be machines especially adaptable to Mexico, U.S. equipment men saw nothing new. Their only worry is that a government deal—say, sugar for machinery—might put the Russian equipment firmly on the Mexican market.

FREEWAY FIGHT ON AGAIN—San Francisco's Downtown Association has demanded that 50 miles of state freeways be reinstated in the city's master plan. They were erased from the plan last January by the city-county Board of Supervisors, which accused state highway engineers of building highways regardless of their esthetic appearance or effect on land values. Now the Association, representing leading merchants, says the city faces "total congestion and restriction of movement" if the freeway plan is not completed.

WHAT PRICE BILLBOARD CONTROL?—The Indiana Highway Commission may not accept the federal bonus accompanying an antibillboard program along Interstate highways. Chairman John Peters says the bonus of ½% of the federal government's share of the cost of such projects would "not come close" to the cost of enforcing such a program.

BIG DIFFERENCE—The City Commission of Wilmington, N. C., has endorsed a $16.4-million proposal to build a high-level bridge over the Cape Fear River, rather than a $6-million low-level crossing on the other side of town. Long a matter of controversy, final decision rests with the State Highway Commission.

NOT SO TOUGH—Revisions in the proposed new zoning code for New York City will make it more acceptable to builders and real estate groups. They opposed the original proposal saying it would cramp the city's growth (ENR Feb. 19, p. 27). The revised code will appear by the end of this month. The changes, mainly in zoning designation, will allow greater building bulk in critical areas.



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Kills the job . . . spares the man with 54 Timken® bearings to roll it easy

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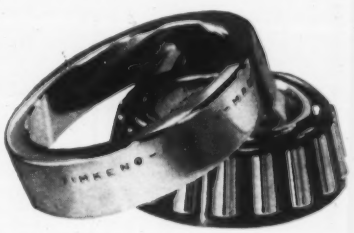

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WASHINGTON OBSERVER

- **Another fuel tax hike coming?**
- **Governors hit cuts in highway money**
- **Expect Democrats to spat**

● **The Administration will ask for an increase in fuel taxes again next January.** President Eisenhower wants the half cent that Congress declined to give him last year when it raised the federal levy by one cent.

Oil companies and highway users will protest. They argue the federal levy, added to state and municipal rates, will make the impost of gasoline and other fuels reach beyond the point of diminishing returns.

Bureau of Public Roads says the extra half cent is needed to put financing in a condition to carry out construction plans already decided upon. Any expansion of the program, including the Defense Department request to raise Interstate bridge heights from 14 to 17 ft will surely cost more. And BPR officials say Congress will have to face the issue of how to pay for the increases.

Some officials say that if the Defense Department wants higher bridges, or heavier road beds for missile transport, then the Pentagon's $41-billion till should be tapped. But most observers believe that in the end, financing will come from the Highway Trust Fund, unless Congress makes the unlikely decision to return to financing partly from general revenues.

● **The governors' conference last week opposed the reduction in federal aid to highways** that followed from the reduced apportionments to states after the return to pay-as-you-go. They don't want to lose the $1 billion or so over the next three years called for in present plans.

The governors called for top-level meeting with the Administration and Congress to get the program back on schedule.

● **Watch for a controversy among the Democrats as the campaign year comes on.**

The approaching fight will be between Congressional leaders and the leaders of the national party—the national committeemen, the governors, the local leaders.

Congressional leaders have tried to lead the party along "realistic" lines on welfare programs such as school construction, public housing and minimum wage. They have judged issues on what the President would accept. The leadership in Congress did give western Democrats a new public works program, over two Presidential vetoes, but generally took a middle line during the first term.

The national committee's spokesman—the Democratic Advisory Council—spoke out for much more than this in its weekend meeting in New York City. The committee meeting, attended by the big names of the party except Senate Majority Leader Lyndon Johnson and Speaker of the House Sam Rayburn, called for more government programs in the area of public power and housing.

The jockeying may bring a change in Congressional attitudes even before next year's convention. If the power of the New York caucus—militantly in favor of more government programs—becomes stronger, then observers feel Senator Johnson and Representative Rayburn will bend a bit and give Congress the chance to vote on issues held back last year.

● **Pressure is building up for the ouster of teamster president James R. Hoffa.** Justice Department attorneys are seeking grand jury action on Hoffa's real estate dealings involving a Sun Valley, Fla., real estate project that went bankrupt despite the teamsters financial backing. The teamster monitors already are seeking to bring Hoffa to trial on the same case.

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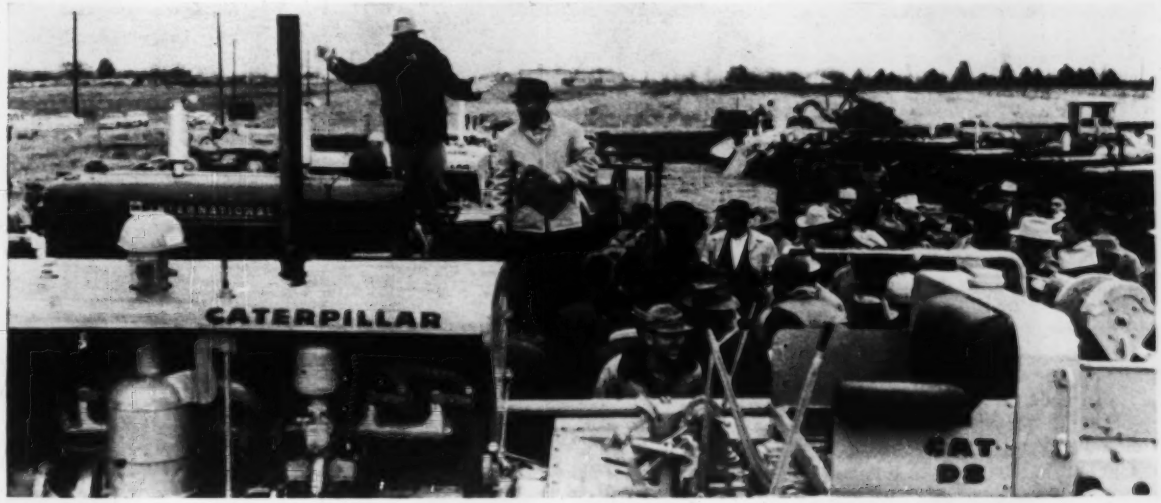


Auctions of used machinery are growing in number and size. The buyers are . . .

Bargain-Hunting for Equipment

It was a raw and cloudy day in Springfield, Ill., but 150 bargain-hunters were on hand in the open lot. They had come from seven states in search of a good buy in construction equipment.

Moving carefully in deference to the fresh paint, the auctioneer climbed to the top of a $25,500 tractor that had seen some 2,000 hours of operation. The tractor went for $14,500. Before the day was over, nearly $300,000 worth of equipment had been sold at prices called too high by the buyers, too low by the sellers.

But the auctioneers said the prices were about right for late autumn. And they should know—construction equipment auctions are becoming big business.

One Midwest auction firm has sold 50% more construction equipment this year than last year, expects to sell at least 10% more next year. Another auctioneer has averaged at least one equipment sale a week this year, expects to do better next year.

Contractors, especially in the Midwest, are finding auctions a good place to beef up the equipment inventory for a current or coming job; a good place to turn surplus equipment into cash.

One Madison, Wis., contractor, after finishing a big turnpike job, turned a load of unneeded equipment into a half-million dollars in cash, with the aid of an auctioneer. In preparing the equipment for sale the contractor first had it sandblasted and painted. He figures that every gallon of paint he used added a hundred dollars to the equipment's sale price.

Manufacturers generally are not too concerned about the impact of auctions on sales of new equipment. While he might sell a few more new machines if there were no auctions, says one manufacturer, auctions do help keep contractors and other users in a buying frame of mind.

Some equipment dealers don't like auctions because of the competition. Others find auctions a handy way to get rid of used inventory and slow-moving items. Some dealers also buy from auctions, picking up pieces of equipment that, when rehabilitated, can be sold at a good profit.

"One thing that equipment dealers can learn from these auctions is the going price of used equipment," says Joe Zeller, of Roesch-Zeller, Inc., a Springfield dealer.

"Sometimes auctions hold surprises for a local dealer who thinks he has his territory pretty well covered," says Mr. Zeller. "He thinks he knows just who is in the market for construction equipment, and then finds that local persons not necessarily connected with construction are buyers."

At the Springfield sale, for example, one buyer of a ½-yd dragline and backhoe was a farmer—he wanted it to help drain one of his marshes.

Major auctioneers now offer a streamlined package that leaves little for the seller to do but turn over the equipment and collect the cash. They book and manage the sales, handle all promotion and advertising, supply the auctioneers and sales crew and even finance the buyers.

Financing terms are usually one-third down, one, two or three years to pay, and a carrying charge of 6% to 8% per year on the unpaid balance.

For its services, the auction firm generally charges about 7% of gross.

A large portion of the non-federal-owned construction equipment sales is handled by three Midwestern auction firms: Forke Brothers, Lincoln, Neb.; Ross & Ross Auctioneers, Inc., Minneapolis, Minn.; and Thorp Sales Corp., Thorp, Wis.

Three musts for a successful auction, says Percy Ross, president of Ross & Ross, are these: ample advance promotion to attract buyers; equipment presented to its best advantage; and items adequately described.

For promotion, the three major firms use newspapers, local magazines, and mailings to their own lists of customers. Sale equipment, no matter how old, usually sports fresh paint and a motor that, at least, starts up immediately.

Before the Springfield auction, which was handled by Thorp, prospective buyers were supplied with a catalog describing the equipment and rating the condition in one of four categories—excellent, very good, good and fair.

Generally, that's about as much help

as the buyer can expect in judging the value of a piece of equipment. While buyers can pick up bargains at auction, they had best know what they're about before they start bidding. Equipment is sold "as is," with no warranty from the auctioneer or the owner.

At the Springfield sale, the equipment included 20 crawler tractors, 9 tractor shovels, 14 motor graders, 14 pieces of trenching and pipelaying equipment, 7 draglines, shovels and cranes; 7 motor and pull scrapers; 8 compressors and a small gravel plant.

Typical prices: $15,900 for a two-year-old, ½-yd crawler crane with dragline and backhoe combination that had seen 2,000 hours of service and originally cost $23,000; power graders, which seemed to be in small demand, sold for a top price of $3,500 and for as little as $800, depending on condition. Within a few hours after the last sale was made, Thorp had turned over a check for the full sale price of the equipment, less the auction fee.

The biggest auction held this year by Ross & Ross grossed $1.4 million on 700 items with a presale valuation of $980,000. The three-day sale, for R-W Construction Co., Milwaukee, drew over 2,600 prospective buyers. Bulk of the equipment was for heavy construction. It included truck and crawler cranes, wheel and crawler tractors, motor graders and scrapers, front end loaders, compressors, pumps, pile drivers, rollers and compactors, and a wide variety of attachments. There were also six automobiles and several trucks.

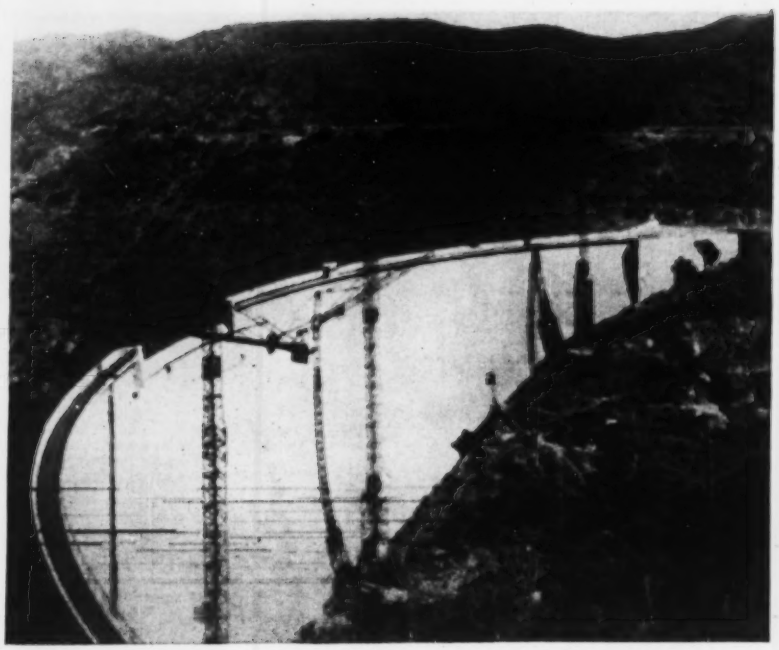
Prices varied considerably. The highest price for any single item was $65,000 for a one-year-old crawler crane with 80-ft boom, a folding gantry and sectional boom hoist. It cost $71,000 new. Small (7 to 10-ton) truck cranes ranged from $5,000 to $10,000. Top price paid for a crawler tractor was $32,000. It was a 1957 model that cost $44,000 new.

Ross & Ross started on a shoestring in 1951, doing about as much equipment business that whole year as it did in the one Milwaukee sale this year. It auctions construction equipment only. Sales this year will total $36 million, twice last year's.

The oldest of the three major auction firms is Forke Brothers. The 38-year-old firm handled its first sale of heavy construction equipment in 1946, conducting less than a dozen sales in '46 and '47. This year, it will have handled 54 such sales.

The firm expects to sell over 2,500 pieces of major equipment this year, not including single axle trucks or such items as welders, sheepsfoot rollers, water pumps and other small items.

On the West Coast, Max Rouse & Sons holds about 30 construction auctions a year, with sales over $5 million.



BEFORE: This thin-arch dam was prime example of dambuilder's art.

French Dam Collapse:

Collapse of the Malpasset concrete thin-arch dam near the French Riviera last week was probably caused by a rock shift under the left-bank foundations. That's the view of French engineers contacted by ENR correspondents in Paris. However, a team of top engineers investigating the failure won't report officially until January at the earliest.

The disaster brought down one of the most advanced examples of the dambuilder's art. Only five years old, Malpasset represented a late phase in arch dam evolution and was a product of the mind and hand of a prime mover in that evolution—Andre Coyne.

Malpasset was the dome or cupola type, with curvature in both vertical and horizontal sections. At the time of its construction, it was the thinnest arch dam ever built—4.9 ft thick at the crest, 22.6 ft thick at the base. Stresses were double those considered permissible 20 years earlier.

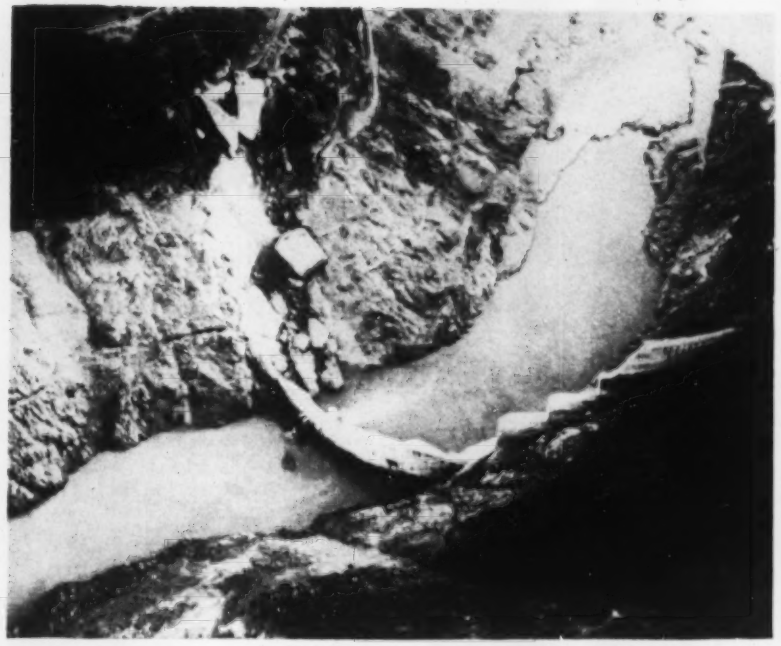
The dam collapsed with no warning following five days of unprecedented rainstorms. The 40,000 acre-ft of water released by the collapse swept down the narrow Reyran River Valley to the Mediterranean, demolishing nearly everything in its path for three or four miles, including road and railway bridges and 1½ miles of new four-lane highway. It inflicted heavy damage in Frejus, a town of 13,500 population, 4½ miles downstream. More than 300 persons died in the disaster.

Reports that the break started in the center of the arch have no particular significance, according to French engineers. A foundation shift, they say, could have caused a break almost anywhere in the structure.

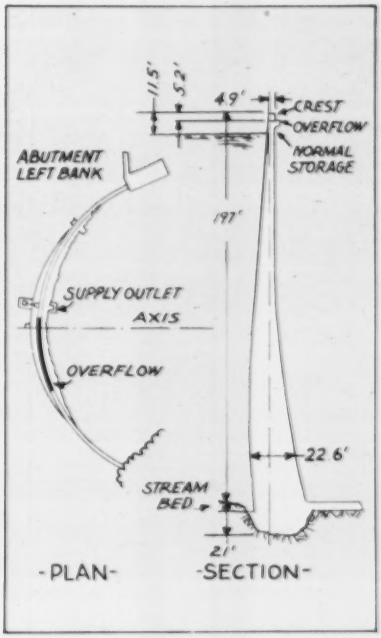
They also tend to discount faulty construction as the cause. Although the step-like fractures evident in the remains on the right bank (see photo) follow planes between concrete lifts and vertical construction joints, the engineers say it merely indicates that the dam broke along planes of least resistance, not that the fracture planes were defective.

At the top, Malpasset Dam was about 700 ft long. Its crest subtended

DAM SITE is near French Riviera.



AFTER: Low barrier and scarred canyon mark the dam site.



Dam's plan and vertical section.

Rock Shift Was Probable Cause

an angle of 135 degrees. Radius of the upstream face at the top was 344 ft. The crest was 218 ft above the bottom of the foundation and 197 ft above the streambed. The spillway crested 5.2 ft below the top of the dam. Normal storage level was 6.3 ft below the spillway crest.

A major theme in the Malpasset design, as in other thin arches, was economy of materials at the expense of construction simplicity. Radii of the dam's single thin arch varied with height on both the upstream and downstream faces. This complicated the forming but made it feasible to keep concrete quantities to a minimum.

The spillway was of the overflow free-fall type, about 97 ft long, located near the center of the top of the dam. It was designed to discharge 6,350 cfs at the highest design level of storage, or a maximum of 8,800 cfs, taking advantage of additional storage made possible by a 20-in.-high precast concrete coping along the top of the dam.

To prevent erosion at the base of the dam by the spilling water, the designers provided a concrete apron about 20 in. thick.

The dam had two other outlets besides the spillway. About 62 ft below normal storage level, the intake for a domestic and irrigation water supply system passed through the arch. The reservoir side of this opening was equipped with a metal grille and a manually operated valve. A downstream control regulated the discharge. About 16 ft above streambed was a sluice 4.9 ft in diameter. It had a manually operated lift gate on the upstream side and a butterfly valve on the downstream side that opened automatically when water level rose within 3 ft of the spillway crest. The sluice had a discharge capability of 1,400 cfs at maximum reservoir storage level.

The Reyran Valley's transverse profile at the dam site is roughly trapezoidal. The small base at the valley floor is about 100 ft long; the large base is about 600 ft long at a height of 330 ft above the floor.

The arch abutted a rocky peak on the right bank and terminated in a concrete abutment and wing wall on the left.

The arch was built in 17 independent blocks separated by vertical contraction joints. The blocks averaged about 44 ft in length along the horizontal arc.

Concrete was placed in 4.9-ft lifts. Adjacent blocks were concreted about three lifts apart.

The contraction points were eventually grouted and closed with copper strip on the upstream side and steel sheet on the downstream side. The foundation-to-bedrock was also grouted after the concrete cured. Holes were drilled down from the upper part of the foundation.

The dam contained about 62,500 cu yd of concrete. Water-cement ratio of the mix averaged 0.57. Cement content was 5.4 sacks per cu yd in the dam and 4.5 sacks in the abutment.

Coyne & Bellier designed Malpasset with a theoretical mean compressive concrete stress of 680 psi. At the time of construction, this stress level was the latest stage in a gradual progression of design stress increases, which since the 1930s had raised acceptable stresses in Coyne & Bellier arch dams from 355 psi. Observations and extensometer tests of each completed dam in the series gave the designers the data they needed for the next design.

Malpasset was far from being Coyne & Bellier's most highly stressed concrete arch dam. Le Gage Dam, an Electricite de France hydro dam in the upper Loire River Basin, started while Malpasset was still under construction, has a theoretical mean stress of more than 1,400 psi. Built partly to test arch-dam theory, Le Gage is a double-scale reproduction of Stevenson Creek Dam, built in California in 1926. Le Gage is 470 ft long, 125 ft high, 4.25 ft thick at the crest and only 12.5 ft thick at the base.

Malpasset Dam was built as a joint project of the Ministry of Agriculture and the Department of Var. It was built under the direction and control of the Rural Services Department with technical assistance of the consulting engineers.

The team of engineers investigating the failure for the French government is headed by Didier Olivier-Martin, of Electricite de France, and Joseph Duffaut, chief of the large dam section of the Ministry of Industry.

Ike's Trip May Bring Fresh Look

Everywhere President Eisenhower goes on his epoch-making trip to 11 countries in Europe, Asia and Africa, tangible examples of what U. S. foreign aid has accomplished in rebuilding or developing these countries will bolster his plea for confidence in U. S. aims and methods in the cause of good neighborliness and world peace.

Inevitably, what he can say or imply about the future of foreign aid will be eagerly sought. The less developed countries will want to know how much aid they can expect from the U. S. in the period ahead. The more advanced nations will be interested in how much of the foreign aid loads they may be expected to shoulder.

Leaders in all countries will have aid prominently in mind. And the President can tell them he will ask for $4.1 billion more next year.

Since foreign aid generates construction, either directly or indirectly, the economic conditions in the nations Mr. Eisenhower is visiting are of importance to construction men. Here's a rundown on the nations involved.

1. Italy

Once a large recipient of foreign aid, Italy is now out of the needy class. Its war-destroyed ports have been rebuilt, its steam and hydro power supplies have been greatly increased, and its industrial plant is in a high state of efficiency.

Italy prides itself on its prosperity, which places it in a position to give aid rather than seek it. But Italy still needs technical assistance on irrigation and drainage problems in the south of the country, in Sicily and in Sardinia.

2. Turkey

Heavy defense burdens plus ambitious economic development efforts have led to serious inflation in Turkey. Recently this has been brought somewhat under control by slowing the pace of economic development. Previously, however, four major hydro power dams had been completed, highways improved, slum clearance undertaken in Istanbul and many public buildings erected in Ankara.

Turkey now wants more U. S. help in financing industrial, mining and communication projects to give the Turkish people a higher standard of living. It also needs continuing military assistance to carry the huge defense effort—which also involves construction.

3. Pakistan

Pakistan is launching an ambitious second five-year plan calling for development of major sectors of the economy. Success will depend largely upon the level of U. S. aid. One of the biggest jobs will be development of the Indus River Basin in cooperation with India, involving large irrigation and power projects. Continuing major defense effort also relies heavily on U. S. assistance and involves construction.

4. Afghanistan

Afghans are asking for more U. S. help for roadbuilding, irrigation, power, air transport and airports. U. S. assistance so far to this most vulnerable free world outpost is only about half what the Soviet Union has provided. The U. S. total is about $100 million, and the most notable U. S. contribution has been a large power dam on the Kabul River. Prince Daud insists that the Afghans are determined to remain independent, but economic dependence on Russia makes the difference.

5. India

India's needs for external financial assistance are mounting fast. Export earnings still are off. The third five-year plan, now on the drawing boards, calls for a step-up in industrialization. Indus Valley development by Pakistan also will require funds from India for some of the projects that will be necessary. Such payments will stem from the fact that India is diverting water from the Indus Basin for its Rajasthan canal and irrigation project. Chinese military pressure may also force diversion of Indian resources to defense. Finally, India wants more cash as well as food to meet its agricultural deficit.

6. Iran

Development in Iran was seriously set back by the oil nationalization crisis, poor planning and heavy military burdens. Now Iran is trying to catch up by an extensive program of planning and construction—dams, roads and factories in the southwest province of Khuzestan; also dams, road and airport facilities in the north around Teheran. Oil revenues are potentially adequate

at Foreign Aid, Construction Needs

for financing this economic development, but Iran needs more U. S. technical and military assistance.

7. Greece

The Greek economy is too poor to support heavy military burdens. At present military expenditures—partly for construction projects—consume 30% of the budget. Excluding food, U. S. aid has been largely military, although after the war some steam power plants were built and reconstruction was carried out in the port of Athens and in the Corinth Canal. Now Greece wants help to develop industry and the country's limited mining potential.

8. Tunisia

This North African country needs economic assistance of every kind. It gets modest U. S. aid now, but is not likely to be able to qualify for more. The Algerian problem dominates Tunisian politics, and it is in this sphere that the talks between Presidents Eisenhower and Bourguiba are likely to center.

9. France

Like Italy, only more so, France has regained such health and prosperity that she can be on the giving end rather than the receiving end of foreign aid. Large amounts of U. S. funds helped France to rebuild her railroads and many of her towns, to expand her hydro and steam power resources and give her industries a new lease on life. Partly as a consequence, France may well lend a sympathetic ear if, at the western summit conference in Paris, President Eisenhower chooses to discuss ways of increasing and coordinating collective western economic assistance to underdeveloped areas.

10. Spain

What this country needs most is a modern transport system of railroads and highways. The subject of U. S. aid for such facilities has come up before and it may again. The vital U. S. airbases in Spain as well as an important naval facility there will be the logical starting point for talks between General Franco and the President. They could well range over into economic needs, for Spain is a country whose natural resources are meager at best and whose financial ability to develop them has never been adequate.

11. Morocco

Since its separation from France, Morocco has experienced tougher economic going than it cares to admit. Also, in its nationalistic fervor to express its independence, it has exacted a promise from the U. S. to give up its five airbases there. Considering the economic consequences, however, it may have some second thoughts on this matter, and they may be expressed to the President.

U.S. Pushes Plastics Research

A plastics research center set up by the Department of Defense to serve missile development work may prove a boon to the construction industry.

The center will open early next year at Picatinny Arsenal in Dover, N. J., where Army Ordnance operates a complete plastics laboratory engaged in basic and applied research. The center will provide technical data and information to plastics manufacturers in defense work.

Primary objective of the center is to shorten lead time in engineering development of plastics, says John R. Towsend, special assistant to the Secretary of Defense.

The center's activities will follow the pattern of the Battelle Memorial Institute's titanium center, established to speed development work of that metal for defense applications.

Plastics are assuming a growing role in missile construction. Their limits are largely technical—there is a need to standardize quality and performance.

To that end, the Defense Department hopes the technical center will speed exchange of information between plastics manufacturers.

The center's work may also develop some new uses for plastics in construction. Manufacturers have had some difficulty developing a construction market, especially in housing. Building codes and price differentials between plastics and conventional materials are two major reasons.

Baptists Plan Circular Center

The American Baptist Convention will begin construction next spring on a circular headquarters at Valley Forge, Pa. The project will cover 55 acres and include:

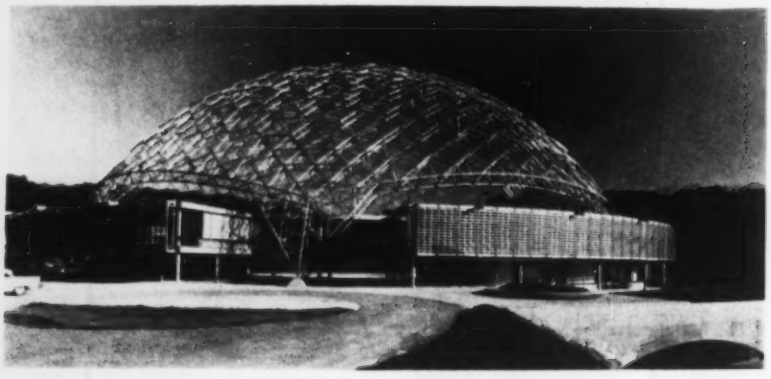
- A three-story, 52-ft-wide office building circling an open courtyard 220 ft in diameter.
- An 80-ft-high chapel rising from a baptismal pool in the courtyard.
- A one-story graphic arts building covering an arc of 110 deg on a radius swung from the courtyard center.
- A one-story adjunct to the office building, providing 11,000 sq ft of conference and cafeteria space.

Four stair towers break up the circular layout of the office building, and divide the two top stories into arcs. The top floors furnish a total of 137,000 sq ft of office space. Ground floor of this building consists of a partly enclosed arcade. Open sections of the arcade provide access to the interior courtyard.

The graphic arts building—160 ft wide and 812 ft long at its outer circumference—supplies 118,000 sq ft of floor area for printing, binding, shipping and receiving. Thin-shell concrete will roof this structure.

Total cost of the project is $8.5 million, including land purchase, construction and moving expenses for equipment and personnel. Groundbreaking is scheduled for April, 1960.

Architect Vincent G. Kling of Philadelphia designed the center; McCormick-Taylor Associates, also of Philadelphia, are the structural engineers.



A Showcase for Metals

This weblike geodesic dome forms a canopy over the new headquarters for the American Society for Metals near Cleveland, which was dedicated last week. Except for glass walls, the three-level, semicircular building is all metal: aluminum dome, stainless steel stairs, doors and sunshades, aluminum window frames, bronzed door handles, brass light fixtures, copper screening (ENR Mar. 19, p. 54). A sunken garden will display specimens of native minerals.

Major Jet Airport Planned For New York-New Jersey

The Port of New York Authority will propose construction of a major jet commercial airport to serve the growing needs of the New York-New Jersey area.

Probable site for the huge airfield will be a 5,000- to 7,000-acre tract of marshland in northeast New Jersey, 25 miles west of Manhattan.

PNYA will submit preliminary studies for the airport next week to the governors and legislatures of New York and New Jersey. The site would have to be approved by the two state legislatures, because it is outside the present PNYA jurisdiction.

New Jersey Gov. Robert B. Meyner says he will oppose a new airport in north Jersey until he is assured that its inconveniences to residents, business and industry in the area will be minimal. He has refused to permit jet planes to use Newark Airport because of their noise.

The airport is not expected to be finished before 1967. By then, existing facilities in the New York area will be overcrowded.

No cost estimate for the project has been given. The authority has already spent $210 million on Idlewild International Airport, and that field is not yet completed.

Downtown Houston to Get $100-Million Development

Plans are under way for a $100-million commercial development in downtown Houston. Welton Becket and Associates of Los Angeles will do the design work for Cullen Center, Inc.

Preliminary studies are going on now, but working drawings will not be completed until the end of next year.

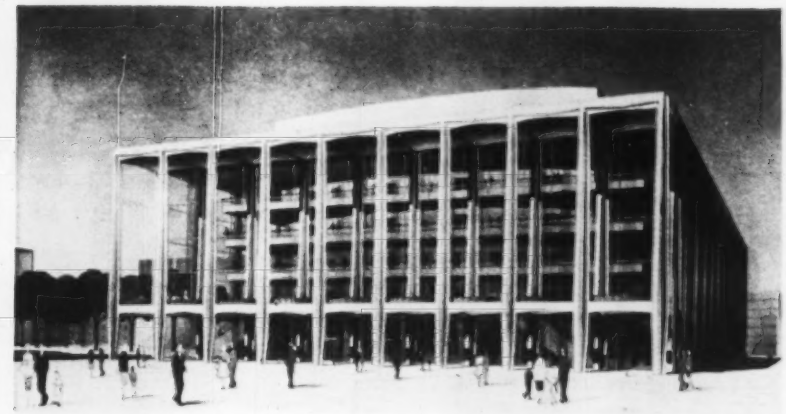
The project will extend over more than five blocks of the southwestern section of the downtown area.

Main units in the center will be three office buildings and a hotel. Largest of the office buildings will probably rise 40 stories and contain a million sq ft of floor space. The other two structures are planned at 350,000 sq ft each. The hotel is expected to include at least 500 guest rooms.

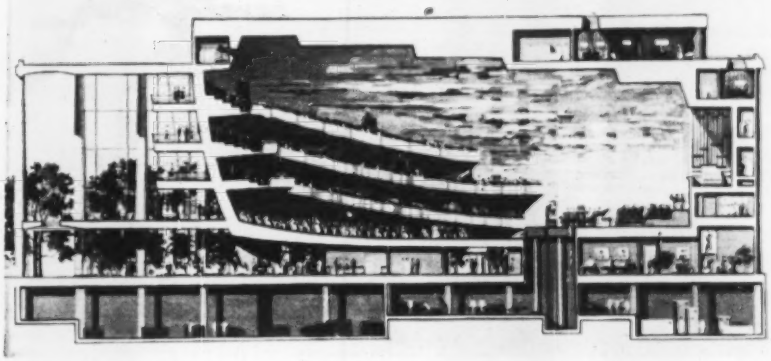
Parking facilities will be provided. Department stores, specialty stores and restaurants will be included in the planning.

Elevated ramps will connect the main structures at second story level. This will double the "street level" of each building, separate local pedestrian traffic in the center from traffic running through the center, and provide an added concourse in each building.

Construction time required to complete the plan has been estimated from five to as long as ten years.



First Lincoln Center Building . . .



. . . Is Designed Strictly for Music

Construction will start this week on Philharmonic Hall, the first building to go up at the Lincoln Center for the Performing Arts in New York City.

Fuller - Turner - Walsh - Slattery, the New York City joint venture building the center signed a contract with Poirier & McClane Corp., New York City, for foundation construction at the hall. Work on the foundations will start immediately.

Getting the hall finished in time for the 1961-62 concert season means tight work all the way. Here's the construction schedule: Foundation work will run through the winter; superstructure work will start in April, 1960; by next fall, the hall should be closed to allow finishing work to go on through the winter.

By the middle of 1961, the hall should be ready for concert trials and final punch-list work, in time for the scheduled opening of the season that fall.

The center is scheduled for completion in 1964 (ENR Oct. 15, p. 27).

Major design consideration was getting the best possible acoustics for orchestral music. Everything else was done with this premise in mind, says architect Max Abramovitz, of Harrison & Abramovitz, which is designing the entire center.

For the listener, this means a 2,400-seat hall with shallow balconies above the orchestra level and no seat farther than 138 ft from the stage platform. The 70-ft-high, steel frame building will measure 194 x 262 ft over-all.

For the musician, platform elevators will give maximum flexibility for stage size and orchestra arrangements, and allow for choral groups. An adjustable canopy over the stage will give optimum sound reflection for any type of performance.

The joint venture contractors are working now on final cost estimates for the building. But Carlton F. Rosenburgh, vice president of Turner Construction Co., still quotes the $10.6-million budget figure set by Lincoln Center.

The four companies, George A. Fuller Co., Turner Construction Co., Walsh Construction Co., and Slattery Contracting Co., Inc., worked together on construction of the United Nations headquarters.

Vapor Compression Method Picked for Desalting Plant

The federal government's fourth salt water conversion plant will use a vapor compression system. Interior Department's Office of Saline Water says the plant will be located either in the northern Great Plains or the arid Southwest. It will be a fairly small plant—100,000 gpd.

This method uses heat released from compression of vapor created in one stage to boil water in the next stage. It it said to have a high heat-use efficiency, requiring only one pound of fuel to produce 200 lb of fresh water.

Design contracts have been awarded for two plants in Interior's five-plant demonstration program—one in Freeport, Tex., the other in San Diego (ENR Oct. 1, p. 23). The third unit is also planned for the Great Plains or Southwest regions and a fifth pilot model will be located on the East Coast.

Auto Tunnel in Virginia Estimated at $24.5 Million

Estimated price of a second vehicular tunnel between Portsmouth and Norfolk, Va., is $24,482,000. That's the figure given to the Elizabeth River Tunnel Commission by consultants Parsons, Brinckerhoff, Hall and Macdonald of New York City.

The commission will invite construction bids from Merritt-Chapman & Scott Corp., New York City; Tidewater Construction Corp., Norfolk; the Arundel Corp., Baltimore; Raymond International Corp., New York City; J. Rich Steers, New York City; Johnson, Drake & Piper, New York City; Morrison-Knudsen Co., Inc., Boise, Idaho; Massman Construction Co., Kansas City, Mo.; Peter Kiewit Sons Co., Omaha; and Brown & Root Co., Houston.

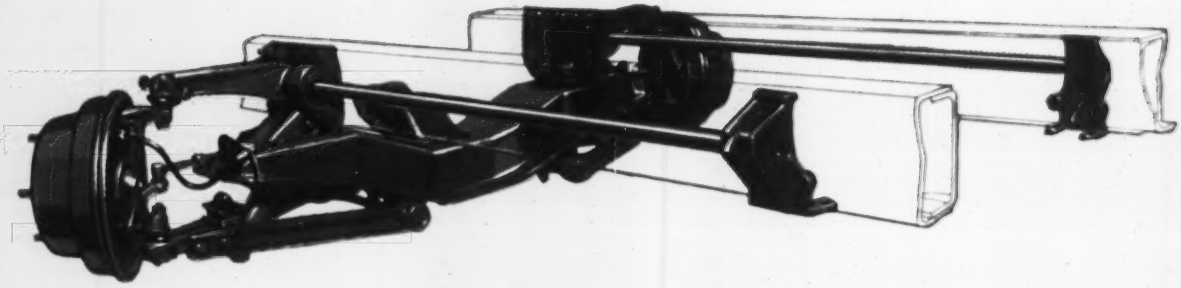
New York Gets Plan for Giant Wholesale Market

Plans for $25-million wholesale produce market were placed before New York City's Board of Estimate last week.

The new market would provide 240 distributors' stores, each served by truck and rail loading platforms, on a 126-acre site beside the Bronx River. Two expressways would provide access by truck from many points in the metropolitan area.

A $10-million annual saving for growers, distributors and consumers is estimated by consultants to the Department of Public Works. New York's present food distribution center is a congested area in lower Manhattan.

Borrowed funds would cover construction costs over a 30-year period.



CHEVROLET'S REVOLUTIONARY TORSION-SPRING RIDE

the most significant new truck development in decades!

Years of intensive engineering achieved a revolutionary result—a totally new truck suspension system. The most exhaustive chassis engineering program in trucking history proved conclusively that, from the standpoints of both ride and durability, the finest possible truck suspension system would consist of independently suspended front wheels with torsion bar springing. Advancing on this principle, Chevrolet engineers proceeded through years of development to produce a completely new system for the 1960 Chevrolet truck product.

New Torsion-Spring Ride—how it works. The revolutionary result of Chevy's all-out engineering effort—Torsion-Spring Ride—eliminates both the old-fashioned I-beam front axle and friction-producing front leaf springs. Each front wheel, suspended independently of the other through tough control arms and low-friction linkage, is free to step cleanly over bumps without jarring the entire truck. Also, friction-free torsion bars on either side of the chassis, specially mounted to provide a twisting action, work to absorb each jolt; they flex freely to soak up all kinds of shocks, from the smallest to the most severe.

Three new rear suspensions, tough and tailored to the truck, are completely redesigned to complement the independent front suspension in every weight class.

Here's a ride that lets you get more work done in a day's time! Take a '60 Chevrolet truck over a rough stretch of back road and feel the absence of I-beam shimmy and wheel fight. Chevy's torsion springs soak up jolts and jars that would shake the headlights off an ordinary I-beam rig. You move along with maximum payloads at higher safe cruising speeds. You make off-the-highway runs in less time, improving your ton-mile-per-hour rate as much as 100%.

A ride that shows respect for the driver and the load! Out at the GM Proving Ground, the test drivers will take a torsion-spring Chevy any day over an I-beam truck—even if they have to drive it twice as far. The ride's that much better; that much safer. The load, too, has an easier time of it. There's far less bounce and jounce, less danger of damaging fragile cargoes.

A ride that adds extra thousands of miles to the truck's working life! You can be sure the shockproof action of Chevrolet torsion-spring ride means lower maintenance costs. As much as 78% of all objectionable road shock and vibration is absorbed before it can be transmitted to the truck's body and sheet metal. Chevy trucks stay new-looking a whole lot longer and their working life is increased by extra thousands of miles.

Once you've experienced the incredible smoothness of a torsion-spring ride, you'll realize that Chevrolet has set off a full-scale revolution with the introduction of its '60 models. By throwing away the old-fashioned I-beam in favor of independent front suspension, Chevy's new design has improved virtually all phases of truck performance. Drive a new one just once. That's all we ask. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

1960 CHEVROLET STURDI-BILT TRUCKS

How tough is Chevy's total newness?

Grueling, year-long torture test proves Chevrolet's do-the-job durability!

The proof is in the performance . . . and one of the most exhaustive tests in trucking history proved beyond question the stamina and staying power of Chevy's totally new suspension system and over-all design for '60.

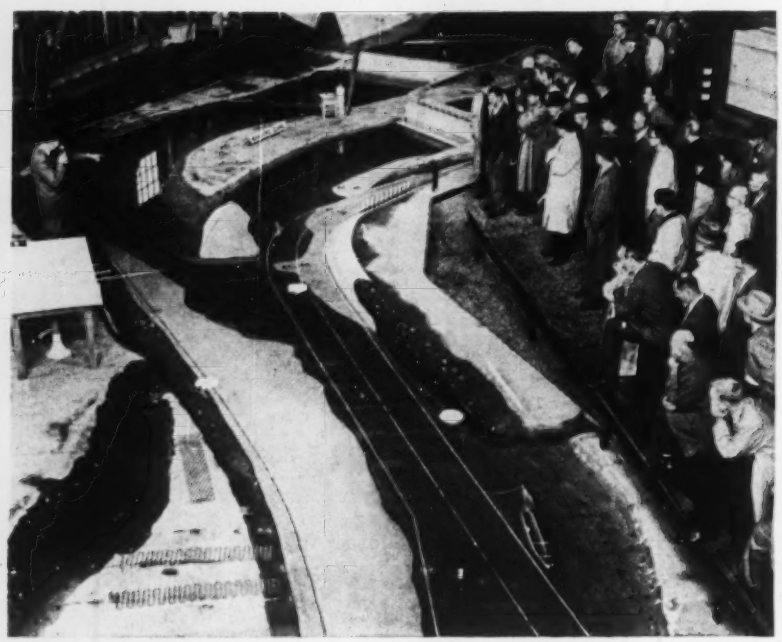
At the General Motors Proving Ground, near Detroit, a punishing 5.2-mile test course was specially laid out to exceed the most severe operating conditions found in America. Twelve months ago, a standard 1960 Chevrolet Series M70 tandem model, overloaded for testing purposes, rolled onto this truck-busting course. It has been running continually ever since!

Every lap submits both the front and rear suspension to maximum stress, rolls it over buried logs and chassis-pounding bumps of all kinds, moves the suspension system into maximum positions of twist and compression. Impacting over boulders and potholes, on the straightaway and in turns subjects the front suspension to a brutal beating seldom encountered even in off-the-road operations. To test the effects of high frequency vibration, one section of the course is over an extreme washboard surface. On every lap, each component receives maximum punishment on this twisting, turning route.

Yet, after twelve hard months, under all kinds of weather conditions, this 1960 Chevrolet is still going strong, with *no major component failures* of any kind! That's the equivalent of nine tough seasons of truck operation . . . and it's conclusive proof of the strength and durability of Chevrolet's totally new trucks for '60!

CHEVROLET

They're worth more because they work more!



White lines on model show channel for . . .

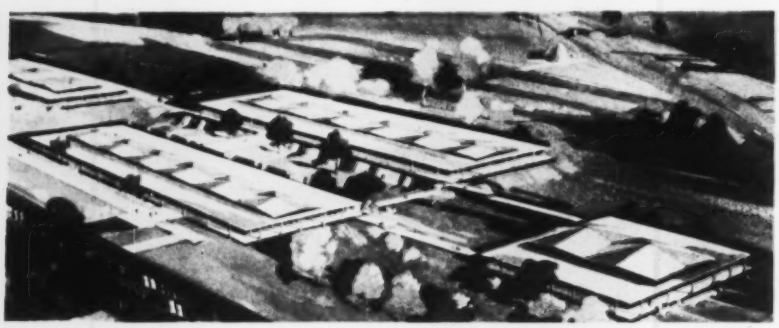
Safer Bonneville Lock Approach

Forthcoming channel and bank improvements that will help ocean-going vessels safely through the hazardous approach to Bonneville Dam's lock were demonstrated recently by the Portland District, Corps of Engineers.

Only one ocean-going ship has ever made the trip through the lock. A 290-ft steamer did it 21 years ago with a cargo for The Dalles, Ore. Now Harvey Aluminum Co. wants to bring in aluminum-laden freighters to its reduction plant at The Dalles.

The $1.5-million job will be bid next spring. It is authorized as part of a 27-ft channel depth from Vancouver, Wash., to The Dalles. Complete reconstruction of the Bonneville lock was rejected as uneconomical.

White lines (photo) in the model at the Corps' Bonneville hydraulic laboratory indicate the proposed channel. It involves cutting back the Oregon bank more than 100 ft. Other areas would be deepened and widened to improve flow characteristics.



Shell Roofs for Research Center

A research center in California will feature double-folded-plate concrete shell roofs. Raised above the level of adjacent flat roof areas, the shells provide access to outside air around their perimeter.

The $4-million project consists of four one-story office-laboratory buildings and a two-story administration building located at 50-acre site on the Palos Verdes Peninsula. Except for the concrete shells, framing is structural steel. Glass walls will enclose the administration building.

Architect-engineer is Charles Luckman Associates of Los Angeles. Nortronics, a division of Northrup Corp., is the owner.

Around the World . . .

• **Federal building**—Bids on a $24.5-million, 18-story federal building in Dallas should be let around July, 1960, say government sources in Dallas, although Congress hasn't as yet appropriated funds for the project. The building is expected to be the largest center in the South.

• **More coal tar for roads?**—The Colorado Department of Highways has asked Curtiss-Wright Research Corp. to submit a proposal for a pilot plant for development of coal tar as a binder in highway construction. Colorado would like to make more use of its coal deposits.

• **Russian success?**—Moscow's housing program for the current seven-year plan has been doubled from 10.7- to 20.5-million sq ft. Either the Soviet emphasis on prefab concrete housing is paying off in higher production or crowding in capital has forced a building shift from another area.

• **Rockfill and roll?**—At the top of the hit parade in the United Arab Republic is a ditty titled "The Aswan High Dam Song," reports the NEW YORK HERALD TRIBUNE.

• **London redevelopment**—London is considering a $70-million redevelopment of the bomb-damaged area surrounding the Tower of London. The proposal includes a 16-story office building, other office and commercial buildings, and pedestrian concourse.

• **Dutch go underground**—A $50-million underground railway with a capacity of some 30,000 persons per hour is in the advanced planning stage in Rotterdam. It will connect the north and south parts of the city and run under the mouths of the Rhine and Meuse rivers.

• **Regulation esthetics**—Architects in Brockville Center, N. Y., are fighting a proposed law that would give local authorities control over the exterior appearance of new buildings. The architects say it would restrain freedom of expression, give the Village Board too much power and create confusion. Under the ordinance the board could review building plans and decide whether exteriors are too radical or too similar in design to other nearby buildings.

• **Dam for Alaska**—Chugach Electric Association, Anchorage, Alaska, plans an 18,000-kw hydroelectric dam on Lower Train Lake, near Moose Pass, Alaska. Cost: $9.2 million.

B.F.Goodrich

WHAT'S THE MOST IMPORTANT THING ABOUT A BRAKE?

You hear a lot of arguments about which kind of actuation is best! But unless the brake itself has the inherent capacity to absorb energy and stop without fade, actuation is a lever without a fulcrum.

B.F.Goodrich Hi-Torque Brakes, with exclusive full circle stopping power, have twice the capability of ordinary two-shoe brakes—stop twice as fast under actual operating conditions. More uniform lining pressure keeps brake drum heat to a minimum—reduces the chance of fade on those long, steep grades. And Hi-Torque Brakes perform equally well whether the actuation is air or direct hydraulic. Both systems are available only with B.F.Goodrich Hi-Torque Brakes.

Specify the one brake designed with reserve power to give you faster cycle times, greater safety. B.F.Goodrich Hi-Torque Brakes are available in sizes from 17¼" x 4" to 26" x 7". They need no lubrication, adjust themselves automatically. Contact your equipment supplier or B.F.Goodrich Aviation Products, a division of The B.F.Goodrich Company, Dept. EN-129, Troy, Ohio.

B.F.Goodrich ***Hi-Torque brakes***

When flood washed away a caisson, three spans on Tugela River bridge had to be redesigned .

Prestressed Bridge Is Redesigned

An unusual combination of methods and problems marked construction of the Tugela River highway bridge in Natal, South Africa.

Originally designed as a continuous prestressed concrete structure over its entire length, it was redesigned during construction following a disastrous and unseasonable flood.

The end result is a continuous prestressed length of about 955 ft, combined with a continuous prestressed two-span structure about 395 ft long. It is one of the longest bridges of its type in the world.

All piers for the bridge were founded on bedrock by the use of concrete pneumatic caissons. Bottom seal for each caisson was made by pressure grouting of aggregates; slip forms were used for concreting the piers.

Necessity for anchoring foundations on bedrock reflects previous experience with the Tugela, one of the world's most unpredictable rivers. The river drains an area of some 11,000 sq mi. Average annual rainfall over the drainage area is 35 to 40 in., with precipitation occurring mainly in high intensity summer storms. Although the mean flow is only 5,000 cfs, this flow is subject to rapid and violent fluctuation; minimum flow recorded over the last 35 years is 120 cfs; maximum flow, 528,000 cfs.

Construction of the bridge was necessary as a part of the improvement of a major highway from Durban to Zululand. Preliminary study established the length of the bridge at 1,350 ft between abutments, with deck level about 60 ft above dry-weather flow level at + 20.

The Natal Provincial Administration called for bids on a "design and construct" basis. Since the site lies within the coastal belt and is subject to aggressive marine corrosion, designs in structural steel were excluded.

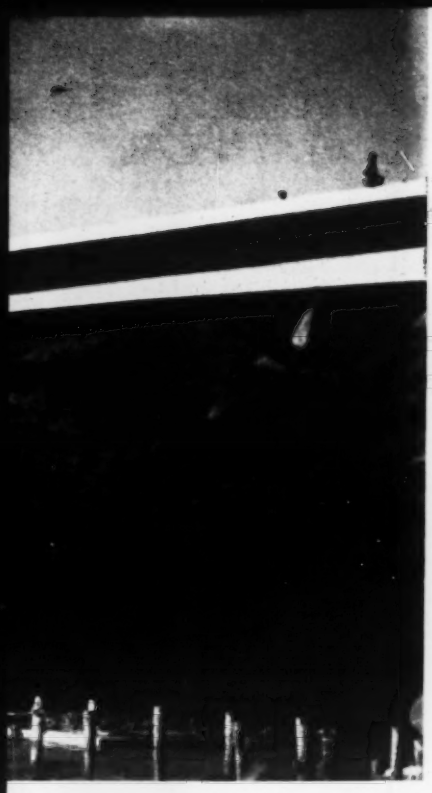
The original design envisaged a structure of seven spans. The two end spans were each to be 175 ft long, and the five remaining spans each 200 ft. Construction was begun from the south abutment, with the first four spans placed in accordance with the original design.

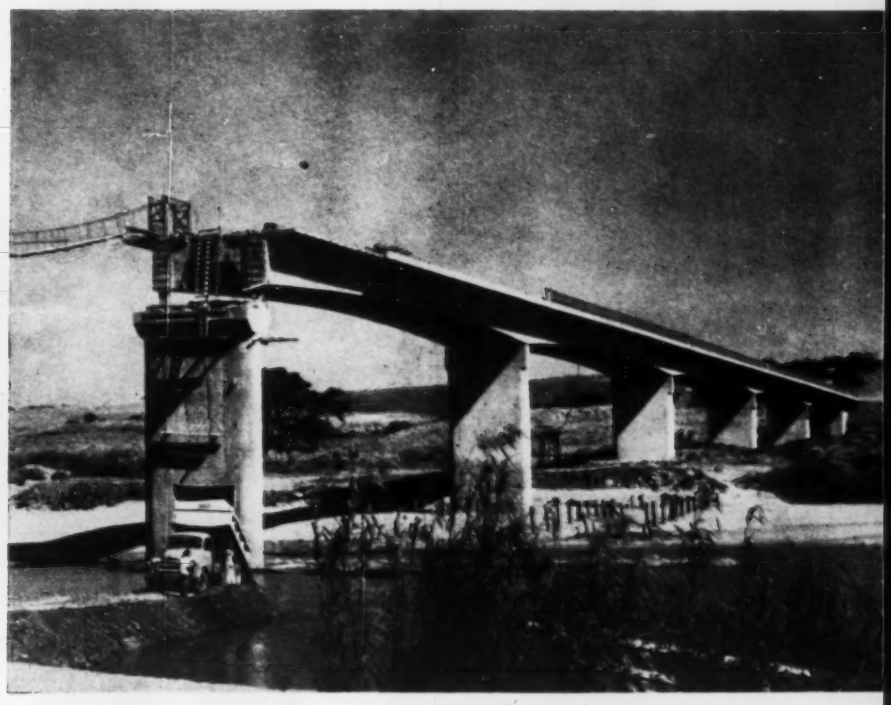
The bridge was built with two parallel, prestressed longitudinal girders, which support a prestressed concrete deck. In the original design, one girder was about 6 ft high, and the other about 8 ft 6 in. high; each had a width of about 44 in. The girders were spaced about 18 ft 8 in. on centers. Over-all width of the deck was nearly 36 ft.

The prestressing system used relies for anchorage of parallel-wire cables on a steel button-head, cold-formed hydraulically on the ends of the steel wires. Cable size was limited by jack capacity to twenty-four 0.28-in.-dia wires. Initial tendon forces were on the order of 220 kips per cable. The two main girders were post-tensioned, as was the deck. Twenty-gage seam-welded sheath was used to prevent the tendons from bonding to the concrete where construction conditions were likely to be severe; ends of the sheath were flared out to 5-in. diameter to accommodate mild steel anchors.

Anchor heads are threaded both internally (for hydraulic-jack shaft and grout-pipe engagement) and externally, for anchor nuts. The anchor nuts bear on 9-in.-square plates. This arrangement lends itself readily to joining of adjacent tendons by use of external sleeve couplings or internal high tensile shafts. It is thus possible to achieve span-by-span construction and continuity without recourse to cap cables.

The bridge was designed to provide maximum eccentricity of the prestressing cables at the midpoint of each span and over each pier. Splicing (and stressing) points were at a quarter-point of each span. This scheme allowed the





. . . And linked to the five completed spans.

in Midstream

centroid of the distributed cables to be placed within the required limits of eccentricity for final conditions, and within the kern—to eliminate tensions before casting of the following span in each case.

Taking one of the 200-ft spans as typical, here's the general construction procedure:

1. After a preceding span extending 50 ft into the 200-ft span had been completed, the next pier was constructed. A 100-ft section was formed and cast on this pier, extending 50 ft on each side of the pier centerline. This was left in place, unstressed, and supported by shoring.

2. The contractor then positioned forms for the 100-ft center section of the span, spliced cables to the cantilevers' cables, placed concrete, and did the stressing from the free end of a cantilever.

3. When the stressing of a 200-ft span was complete, the next pier was built, and the process repeated. As originally conceived this basic procedure would have been followed for the entire structure, with the two end spans being special cases. Under job conditions, the procedure was somewhat modified for the final three spans.

As planned, the 50-ft cantilever generated sufficient dead load moment over the support to prevent tension.

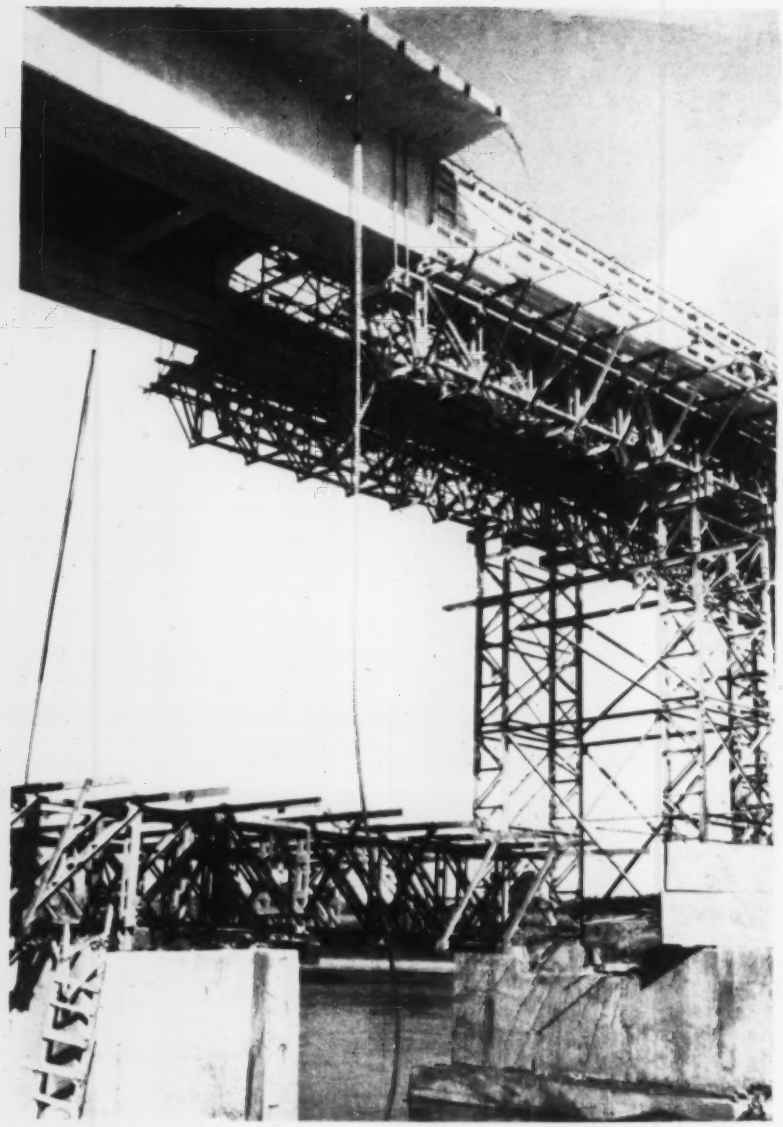
Additional dead load moment was created over the piers when shores were removed from the next span; its value was modified by the cable profiles adopted for this span, which determined the external reactions set up during stressing.

The original intention was to shape the cables to achieve a distribution of dead load moment such that equal cable forces would be required at midspan and support. When analyzed in detail, the appropriate cable profile to achieve this objective appeared to have excessive curvature, particularly since cables could only be stressed from one end. Therefore, a flatter shape was adopted —with a counterweight at the cantilever end used to adjust the moments. The counterbalancing load was on the order of 130 kips. It was applied by the end reaction of a suspended truss supporting part of the following span during casting.

The remainder of the falsework consisted of two continuous structural steel trusses under each main beam. They were supported at 40-ft centers on steel towers founded on timber piles with concrete caps. The continuous trusses were designed to span 80 ft under their own weight plus forming loads.

(*Turn the page*)

DETAIL of cantilever end of one of the redesigned piers.



Counterbalancing cables are installed at free cantilever end.

A working platform over the width of the bridge was established at top-chord level of the steel trusses. From this the slab form was braced.

The bridge deck was prestressed transversely using the same basic system.

A construction joint was located at the underside of the deck, and beams were cast to this level before deck cables and reinforcing were fixed. This provided unobstructed wheelbarrow runs and avoided damage to the deck tendon sheaths. And it was possible to locate and support the cable-carrying stirrups precisely by hanging them from longitudinal scaffold tubing placed temporarily above the beams. There was no difficulty in placing concrete of required strength and quality. Post-tensioning was begun when the concrete reached a maximum compressive strength of 4,500 psi.

Only one major problem was encountered during the construction of the first four spans. That came during the casting of the deck slab of the first span. Slight settlement of the towers occurred and a crack developed in the girder over the first pier. The girder had already been cast, but at this stage it was virtually unreinforced. The crack was sealed before stressing by injecting a neat cement grout under pressure.

For all further spans, the contractor introduced vertical construction gaps at selected points, extending through the full deck section. These were closed as a final operation in the casting cycle and there was no further difficulty.

Concrete caissons were designed with sufficient weight to be self-sinking to the depths planned. They are 12 ft in diameter with three 1-ft 4-in. transverse diaphragms.

Diamond drilling at the preferred site had indicated that bedrock—overlain by boulder and gravel layers—would be encountered at a depth of approximately 50 ft.

Pneumatic operation became necessary when boulders were encountered. The working chamber was sealed off by concrete plugs engaging in recesses cast in the walls of four wells in each caisson. Maximum pressure used was 23 psi-gage. The caisson was sealed by spreading aggregates over the bottom and pressure grouting them through the airlock.

During early stages of the contract, the piers were cast in 8-ft lifts. Later, caissons were sunk and forms hydraulically jacked up simultaneously.

The floods came with construction operations in full swing. This forced redesign of two of the last three spans. First a 10-ft rise in the river moved a caisson slightly out of position. Then, shortly after it had realigned, unseasonable rains swelled the river to a point where that caisson and a neighboring one disappeared downstream. When the water fell, one caisson was discovered lying on its side under 17 ft of silt, fouling its original design location. Removing this caisson was deemed impracticable.

The engineer's solution was to interpret the continuity of the girders at the first washed-out pier. The remaining two spans, however, were made continuous. It was necessary to enlarge one pier to accommodate two sets of bearings.

On the redesigned spans, a reduction in web thickness and the provision of bottom flanges on the internal faces of the beams allowed an over-all reduction in weight while still providing sufficient moment of inertia.

Forming and cable arrangement were complicated. Only 16 web cables could be spliced in each beam; others had to be started and stopped in the lower flanges of the deck. Considerable increase in stirrup reinforcement was necessary and congestion was particularly acute at diaphragms. The redesigned section proved to be just adequate.

Two advantages of the redesign were that construction could be started from the north bank and therefore undertaken during the rainy season and that one caisson was relocated farther into the river. Relocation of that pier was advantageous because of the existence of a steep rock surface near ground level at its original position. Similar conditions existed at the new location, but were less severe and at greater depth.

The bridge was designed and built by the Roberts Construction Co., Ltd., at an original contract price of about $687,000.

47 Tons of Roebling Guys Keep TV Tower in Clear View of 2,464,500 People

The grand, new (1526 ft) WIS-TV transmitting tower in Columbia, South Carolina is, among other things, the fourth tallest man-made structure in the world, with a built-in wind resistance up to 145 miles per hour. This ethereal eminence means an increase of almost 100% in the number of WIS-TV's potential viewers.

Maintaining the tower's sway (both literally and figuratively) over the South Carolina market are six sets of Roebling prestretched galvanized bridge strand. Each set consists of varying lengths of prestretched strand: six pieces of 1-5/16" strand at lengths ranging from 705 to 1022 ft, three pieces of 1-3/16" strand of 826, 837 and 858 ft, respectively, three pieces of 1¼" strand in lengths of 1489, 1492 and 1473 ft and six pieces of 1½" diameter from 1662 ft to 1835 ft.

The sky-high demands, these days, made by TV stations require the facilities and experience of a "feet on the ground" organization like John A. Roebling's Sons Corporation. When you are contemplating a third (or even first) highest man-made structure in the world, you will need guys to keep it eminently erect. That is the time to call on Roebling and enlist the aid and facilities of the authority on suspension systems in this, or any other country. This includes bridges, tramways, ski lifts, materials handling, suspended roofs and, as you already know, new heights in market power.

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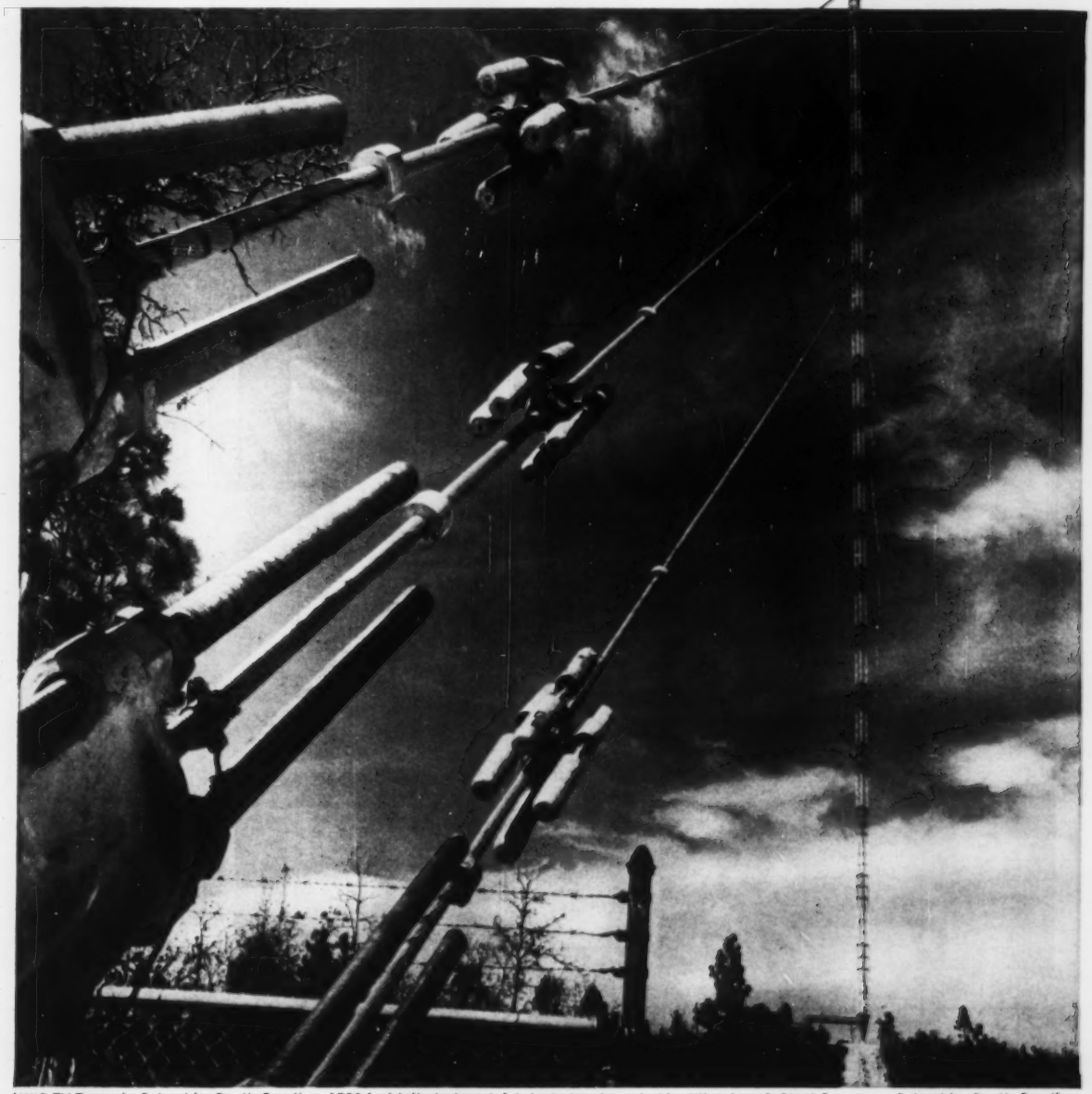
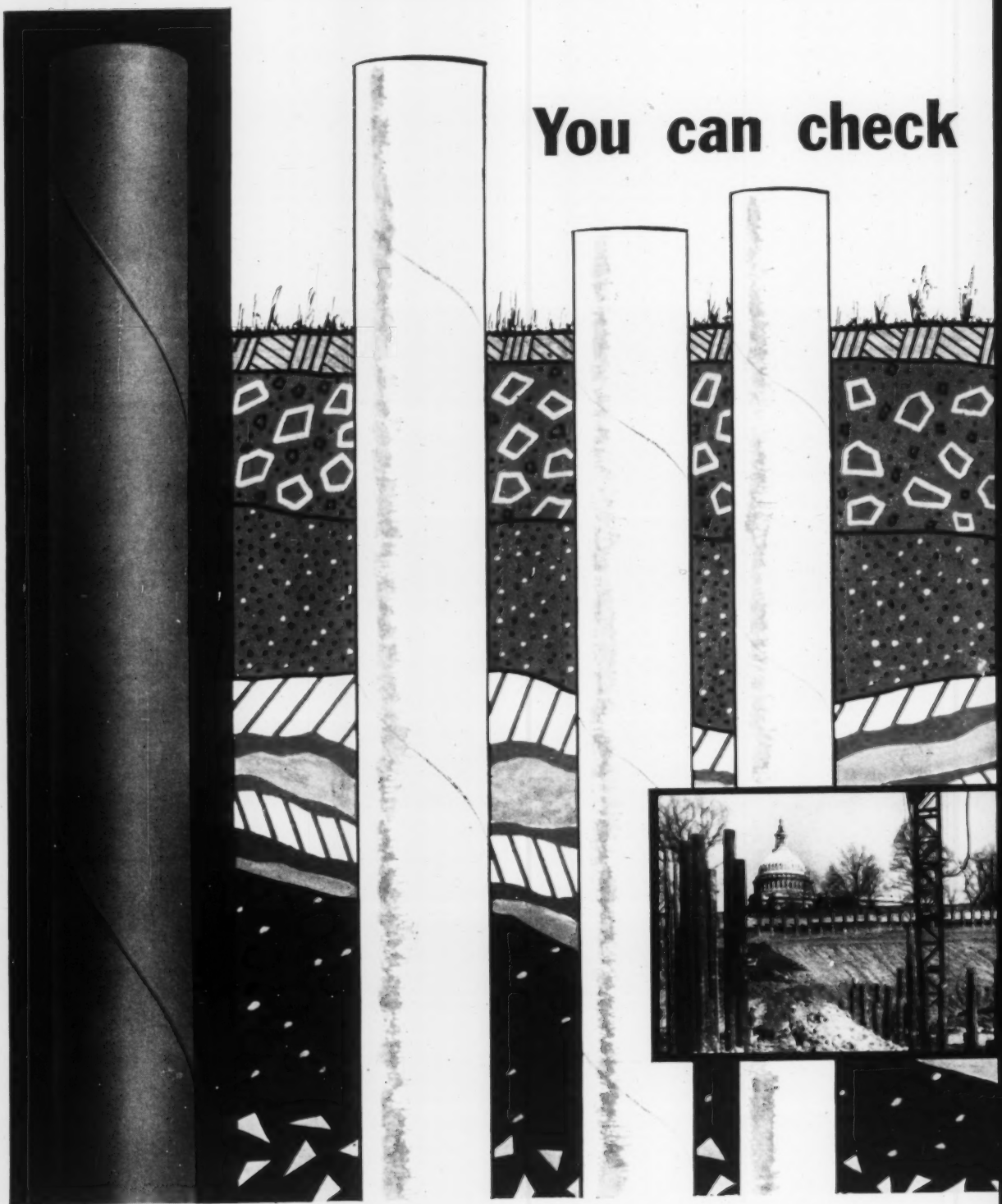


WIS-TV Tower in Columbia, South Carolina, 1526 feet tall, designed, fabricated and erected by Kline Iron & Steel Company, Columbia, South Carolina.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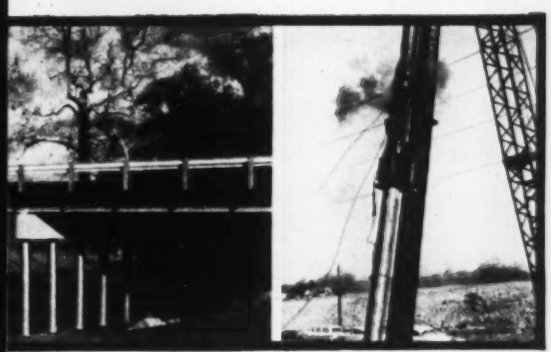

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Behind the Great Wall . . .

Chinese Reds Rebuild Capital

The rapid industrialization of Peiping is creating staggering problems for the government of Communist China. In just five years, the population of the capital city has doubled—to 5.5 million; a population brought in largely to man the new industrial plants springing up on the outskirts and to run the government bureaucracy.

Peiping's housing shortage is fantastic. Current occupancy standards call for 10 sq ft minimum floor space per person. The Peiping City Planning Board hopes to increase this to 20 sq ft in the future. That would match current Russian requirements. But it is pathetically low compared to U. S. standards.

The Philadelphia Housing Code, for example, requires 150 sq ft for the first occupant, an additional 100 sq ft for the next three, and 75 sq ft additional for each occupant over four.

Peiping's old housing, much of it built a century ago, totaled some 600,000 rooms in 1958. Repair of this old housing has been costly. The government has been granting loans for the repair of some 40,000 rooms annually. An additional 46 million sq ft of new housing space has been added to the existing space, according to the planning board. But this has been far from adequate even to satisfy the city's meager space requirements.

Government departments have been forced to rent hotel rooms to house their staffs. About 30% of Peiping's 560 hotels are now used almost exclusively as official lodgings, government offices, or soldiers' billets. The remaining hotels apparently are inadequate to satisfy the demands created by the endless party gatherings and state congresses held in Peiping. Peasants visiting the city often spend the night under gateways or the brick-tunnel arches characteristic of the city.

Many different construction programs contribute to the changing aspect of the city. Most of the 28 new industrial plants are located to the southeast of the city. This location was dictated by the prevailing westerly wind, which carries atmospheric wastes away from the city.

Inside the city, the government is modernizing transportation. Street cars are almost all gone, replaced by more efficient buses and bus trolleys. East and West Changan Boulevards have been transformed from narrow roadways into modern eight-lane thoroughfares, five times their original 33-ft width. Remains of the old Peiping walls were torn down to allow these two boulevards to meet. But the notorious hutungs (10-ft-wide side streets) remain, displaying the stark contrast between the old and the new.

Peiping has swallowed nine adjoining prefectures and one neighboring city within the past two years. A major problem accompanying the expansion is long-range planning for water supply and sanitation systems. Thirteen-Emperors'-Toms Dam, completed last year 62 miles northwest of the capital, and Miyan Dam, now under construction 45 miles northeast of Peiping, apparently will supply water to the city. The Chinese claim to have repaired nearly 200 miles of old sewer lines and to have constructed over 200 miles of new, but it's all open gutter sewerage.

Despite Peiping's present lag behind the major cities of the West, observers are amazed at the rapid results achieved by the Communists in their renovation program. Eradication of the old China, its physical environment as well as its social tradition, is the aim of the Communist government.

Mass housing rises in Peiping's western suburb, but severe housing shortage persists

Public works program has modernized transportation . . .

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How to Determine Rippability

Usefulness of seismic soundings with a hammer for determining quickly and cheaply the rippability of shallow underground strata has been increased by release of the first "rippability velocity chart" by engineers of Caterpillar Tractor Co. The new method (ENR July 16, p. 76) is used to decide whether or not a subsurface layer can be excavated with rippers and scrapers.

The method is based on a correlation between seismic velocities and rippability. Rippable and nonrippable seismic velocities have been determined for 12 different types of soil and rock, ranging from topsoil to granite. Accuracy has been established by running tests under known conditions and by checking ripper performance after tests.

Results of a large number of tests have been combined into a number of charts. Each chart is applicable only to one tractor and ripper combination.

For each type of soil or rock material, the chart indicates a range of seismic velocities within which the material is definitely rippable; a marginal zone in which rippability depends on soil conditions, machine condition, and skill of the operator; and a range in which the material definitely can not be ripped with the equipment being considered. Each contractor must determine rippabbility within the marginal zone; frequently this uncertain range can be eliminated almost completely by experience.

More than 50 contractors now own this equipment, using it to determine subsurface conditions before bidding and equipment scheduling.

Equipment required is light in weight and easy to use. It includes a source of the sound or shock wave (an 8-lb sledge is adequate in most cases), a receiver (standard geophone), and an electronic counter. Total weight is about 40 lbs.

Contractor personnel can learn to operate the equipment in less than an hour; use for a day or two under known conditions will develop reliable accuracy of operation. The seismograph, including self-contained batteries, costs less than $3,000. Manufacturer is Geophysical Specialties Co., Hopkins, Minn.

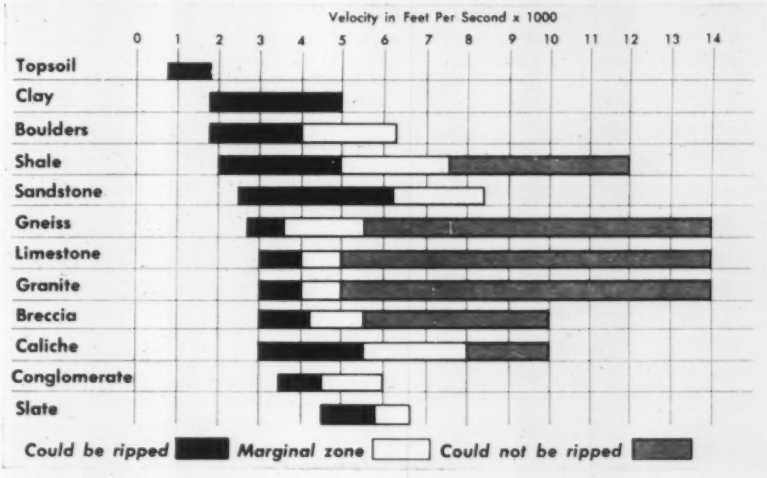
Operating procedure is simple. The electronic counter is housed in a metal container about the size of an overnight case. A geophone plugs into one receptacle on the face of the counter. One end of a long wire goes into another receptable and its other end connects to a spring contact switch on the sledge. Impact of the sledge on a small steel plate will produce a sufficiently strong wave for readings to 50 ft deep under most conditions. If necessary, blasting caps wrapped in a couple of feet of primacord may be used.

With the impact of the sledge on the plate, shock waves are sent through the ground and the switch closes, starting the counter. When the first wave reaches the counter through the geophone, it stops the counter. Time is recorded in milliseconds by flashing lights. The first observation is made at a distance of 5 to 10 ft from the geophone; successive observations are made in a straight line from the geophone at intervals of 5 or 10 ft, up to a maximum normally no more than 100 ft, depending on job and soil conditions.

A complete test can be run in less than 30 minutes. Simple numerical relationships can be used to determine velocity of the wave; additional simple plots and calculations permit determination of the depths and degree of consolidation of successive underground layers.

Satisfactory results cannot be obtained when the surface is frozen. Nor will this approach reveal the presence of softer materials below harder layers, as in rock cap areas. In some instances, the equipment is useful in determining the location of the water table.

1. INTEGRAL RIPPER is mounted on this tractor.



2. RIPPABILITY VELOCITY CHART covers one combination of tractor and ripper.

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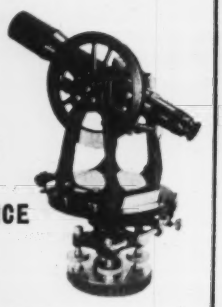

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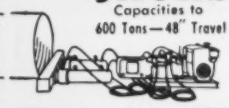

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Robert Allshouse Named Stone, Webster Executive

Robert L. Allshouse, superintendent of construction for Stone & Webster Engineering Corp. in Texas and Louisiana, has been named construction manager of the organization. He has been transferred to the Boston headquarters.

Before joining Stone & Webster in 1952, Mr. Allshouse worked on industrial plant projects for Westinghouse Electric Corp. He also worked on power plants for Gulf States Utilities Co. in Baton Rouge, La., Westlake, La. and Beaumont, Tex.

Mr. Allshouse worked for a time as a mining engineer in the U. S. and Mexico.

He was also a construction engineer for Dwight P. Robinson & Co., United Engineers and Constructors and H. H. Bruwell & Co.

Theodore Kauer Named Director of Public Works

Theodore J. Kauer, executive vice president and chief engineer of the Holmes Construction Co., Wooster, Ohio, has been named Director of Public Works for Ohio.

Mr. Kauer was Ohio highway director from 1949 to 1952 and then served as chief engineer of the Ohio Turnpike Commission until 1955.

In 1941 Mr. Kauer was appointed airport engineer with the Civil Aeronautics Administration and a year later joined the American Concrete Pipe Association as assistant secretary and Washington representative. He has also been managing director of the Wire Reinforcement Institute and has authored several technical articles.

T. H. Lipscomb Commands Army Engineer Division

Brig. Gen. Thomas H. Lipscomb is commanding officer of the North Atlantic Division of the Army engineers. He succeeds Brig. Gen. Clarence Renshaw, now Assistant Chief of Army Engineers for military construction.

Gen. Lipscomb will direct military and civil works projects in New York, Philadelphia, Baltimore, Washington, D. C., Norfolk and Eastern Ocean districts. The North Atlantic Division places $1 million per day in engineering and construction projects.

Careers

Public Works

Gene R. Fiala has been promoted to regional hydraulic engineer for the Bureau of Public Roads for the northwest region.

James C. Bunyard has been named District Engineer at Atlanta for the Asphalt Institute. He has been chief engineer at the Columbus, Miss., Air Force Base of the Strategic Air Command. In his new position he serves the states of Georgia, Florida, and South Carolina.

Charles W. Dermid has been appointed city public works director at Asheville, N. C. He was with the city in various posts from 1927 until 1953 when he entered private business.

Harry Peek is chief of the Division of Ground Water of the North Carolina State Department of Water Resources. He has been with the Ground Water Branch of the U. S. Geological Survey at Memphis. He succeeds **Col. B. C. Snow.**

Donald C. Hyde, general manager of the Cleveland Transit System, has been retained as a special consultant by the San Francisco Bay Area Rapid Transit District's engineering consultants, Parsons Brinckerhoff-Tudor-Bechtel. Mr. Hyde was involved in the $20-million modernization system in Cleveland and has also been connected with the mass transportation study of the Washington, D. C., metropolitan area.

Richard Coleman, has been named director of the Urban Renewal Committee at Springfield, Ohio. He was senior planner for the Columbus, Ohio, Slum Clearance and Rehabilitation Department.

George S. Rawlins of Charlotte, N. C., has been appointed to the North Carolina State Board of Registration for Professional Engineers and Land Surveyors. He succeeds **Louis E. Wooten,** Raleigh, who resigned.

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"K&M" adds 4 types of plastic pipe to its quality line of Asbestos-Cement Pipe! No need any more to buy quality Asbestos-Cement Pipe from "K&M" . . . and then expend time and energy shopping for Plastic Pipe elsewhere. Now, it's as easy as shopping in a supermarket! Get both types of pipe from the source you've always been able to rely on: "K&M"! But, that's not all! You can also simplify planning by fitting both "K&M" Asbestos-Cement and "K&M" Plastic Pipe into the same system . . . custom-tailoring it to your design and your budget requirements. You can get tough, thrifty "K&M" Plastic Pipe and Fittings at all "K&M" factory locations.

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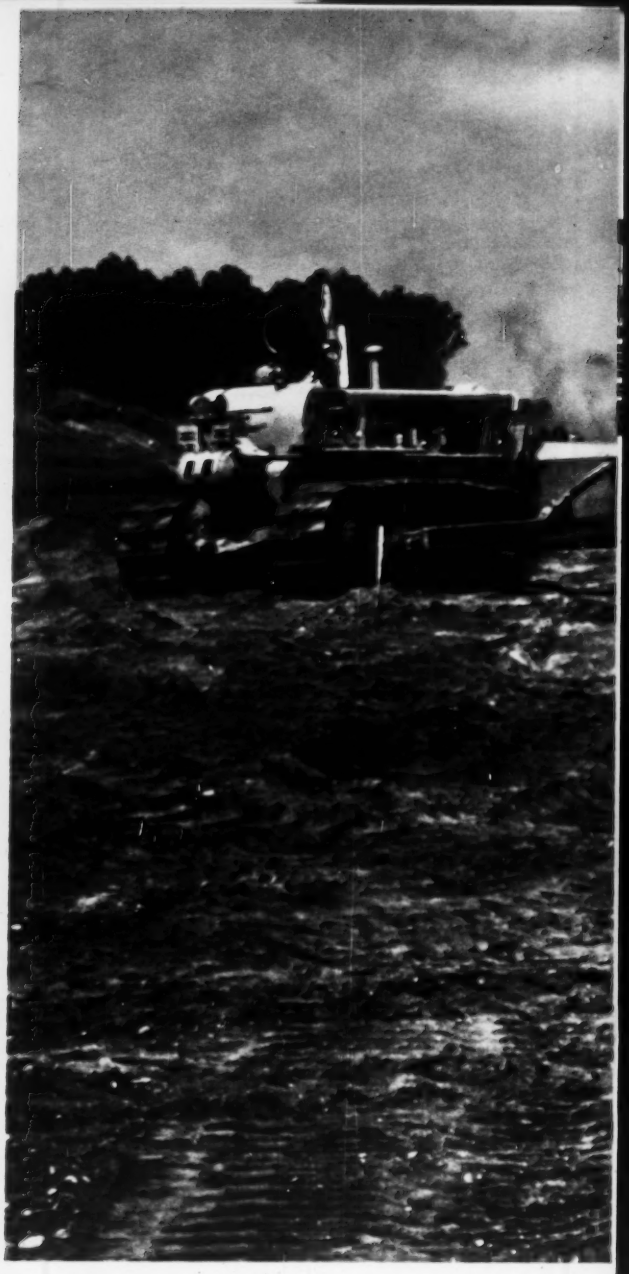
Cats purr—on Gulf Super Duty Motor Oil—for Holloway Construction Company. That's about the size of it according to Maintenance Mechanic Russel Hill, left. At right, H. W. Mattison, Gulf Sales Representative.

Gulf Representative Mattison checks supply of Gulf products with Holloway Project Superintendent F. "Bud" Morrell, left.



Contractor speeds 6,137,000 cubic yard highway job with

GULF MAKES THINGS

Along a 20-mile section of the new 4-lane Interstate Highway between Detroit and Chicago, you can see plenty of proof that Gulf makes things run better. That's where the Holloway Construction Company of Livonia, Michigan, is at work.

At the rate of 45,000 cubic yards of earth a day, Holloway's 54 pieces of earth-moving equipment—all serviced with Gulf fuels and lubricants—are chewing out over 6 million cubic yards of earth, right on schedule.

In the face of all the variables, including weather, which can make or break a construction job, Dan Holloway, President, has established one constant to take some of the gamble out of the business. Wherever his equipment goes, Gulf fuels and lubricants go with it. This has been the policy of the company for over 10 years. It has paid off in unusually clean engines, a minimum of equipment downtime, a smoother and faster operation.

Only one crankcase oil—Gulf Super Duty Motor Oil—is used in the lubrication of Holloway equipment. The same oil is also used for all hydraulic systems. All of

Gulf fuels, lubricants and service . . .

RUN BETTER!

Holloway's diesel engines are powered with Gulf diesel fuel. Gulflex A is used for chassis lubrication.

Other big factors in the smooth pace of the Holloway operation are prompt deliveries of petroleum products by Gulf and on-the-job service of Gulf Petro-engineers.

Gulf fuels, lubricants and service can help you get more out of the equipment on your next project. Let us prove it to you. Just call your nearest Gulf office. Meanwhile, send for the Gulf "Contractors' Guide"—the maintenance bible for heavy equipment.

GULF

GULF OIL CORPORATION
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Please send latest edition of Gulf "Contractors' Guide"

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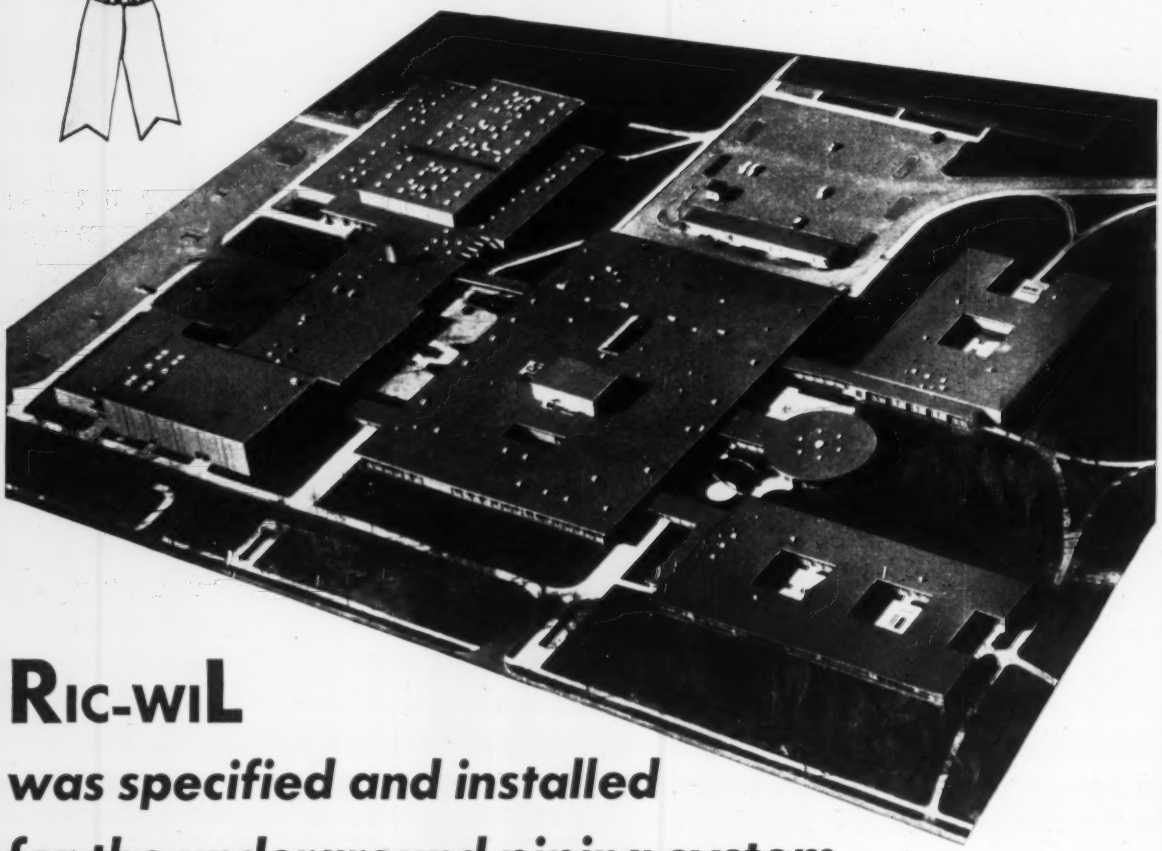
at Award Winning Linton High School...*



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* School Executive and Educational Business Magazines annual award for Architectural and Engineering excellence. Linton High School, Schenectady, New York.

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Obituaries

Julian Nardi, Engineer, Dies in Airline Crash

Julian Nardi, 62, chief mechanical engineer for Ford, Bacon & Davis Inc., New York City engineering and management consultants, was among the 26 persons killed when a Piedmont Airlines plane crashed in Virginia.

Mr. Nardi joined the company in 1935 and was appointed to his last position in 1950. Before his association with Ford, Bacon & Davis he worked for three years in private consulting practice. From 1931 to 1932 he was engineer in charge of Stuart, James & Cook, Inc., New York City.

Born in Chicago, Mr. Nardi received his mechanical engineering degree from the University of Illinois in 1921. He began his career as a draftsman with Sargent & Lundy, Inc., Chicago, and in 1922 moved to Stone & Webster, Inc., Boston. He rose to senior mechanical engineer. One of his major projects was the rehabilitation of the Philadelphia Reading Coal & Iron Co.'s anthracite mining and preparation facilities.

Alexis Preston Steele, 82, president of J. C. Steele & Sons, Statesville, N. C., machinery manufacturer. Mr. Steele served as city engineer at Statesville from 1898 to 1902, when he became a partner in the family company. In 1946 he was named president. He was also director of Pine Hall Brick and Pipe Co., Winston-Salem, N. C.

Louis E. Bientz, 41, partner in Wantland Builders, Louisville contractors.

Andrew L. Nielson, 33, civil engineer for the California department of fish and game. He had also been employed by the California department of water resources.

Richard V. Higbee, 86, retired civil engineer and realtor of Seattle, Wash. He also worked in the office of city engineer for 11 years and in the office of the county engineer for 18 years.

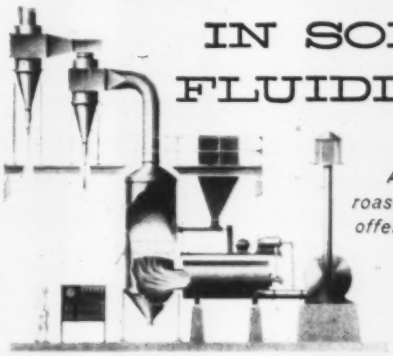
Eli K. Wells, 61, civil engineer with the Corps of Engineers.

Morrell Vrooman, Sr., 84, hydraulic and sanitary engineer and founder of Morrell Vrooman Engineers, Gloversville, N. Y. In World War II he was Chief Civilian Engineer in charge of construction at Fort Dix, N. J. One of his last projects was the $2½-million sewage treatment plant at Poughkeepsie, N. Y.

Process Trends from DORR-OLIVER

A SERVICE TO THE PROCESSING INDUSTRIES

WHAT'S NEXT IN SOLIDS FLUIDIZATION?



A versatile drying, roasting and calcining technique offers opportunities in chemical processing. Here's a report on developments.

Since Dorr-Oliver first introduced the fluidization technique for non-catalytic applications more than ten years ago, our engineers have been constantly investigating its wide potentialities. From such well established operations as the roasting of sulphide ores, SO_2 production for acid manufacture, drying of fine coal and drying and sizing of lime stone, development is now extending into many fields of chemical processing.

The advantages of FluoSolids®, Dorr-Oliver's system for fluidized bed techniques, are its essential simplicity, its compactness, its low operating and maintenance costs, its ability to take wide feed variations and its inherent adaptability to precise temperature control with simple instrumentation. It has proved particularly effective in drying wet, sticky or otherwise difficult-to-handle materials. In some drying operations, the added benefit of classification by particle size is possible.

At D-O's research and development center, Westport, Connecticut, hundreds of test runs covering many possible new applications have been completed. Typical of these are the drying of heat sensitive polymers, hydrochloric acid and sodium sulphate production by the Hargreaves Process, drying of sodium chlorate crystals and potassium silicon fluorides, drying of chemical precipitates, roasting of furfural residues, and low temperature calcination of phosphates. Opportunities for still further development are far from exhausted.

To sum it up: if you want a continuous, high capacity method of drying or heat treating materials . . . if precise and completely uniform temperatures are needed to prevent, induce, or control chemical or physical action . . . if intimate contact of gases with solids is a necessary part of your processing . . . maybe the Dorrco FluoSolids System is your answer.

Chances are that our engineers have already been working on just such a problem as yours. If they haven't, the information and experience now available should at least provide a good starting point for investigation and evaluation. An inquiry costs nothing — and it may open up mutually rewarding opportunities. Dorr-Oliver Incorporated, Stamford, Connecticut.

Dorr-Oliver offers a wide range of equipment, methods and complete systems for the processing industries. Operations include:

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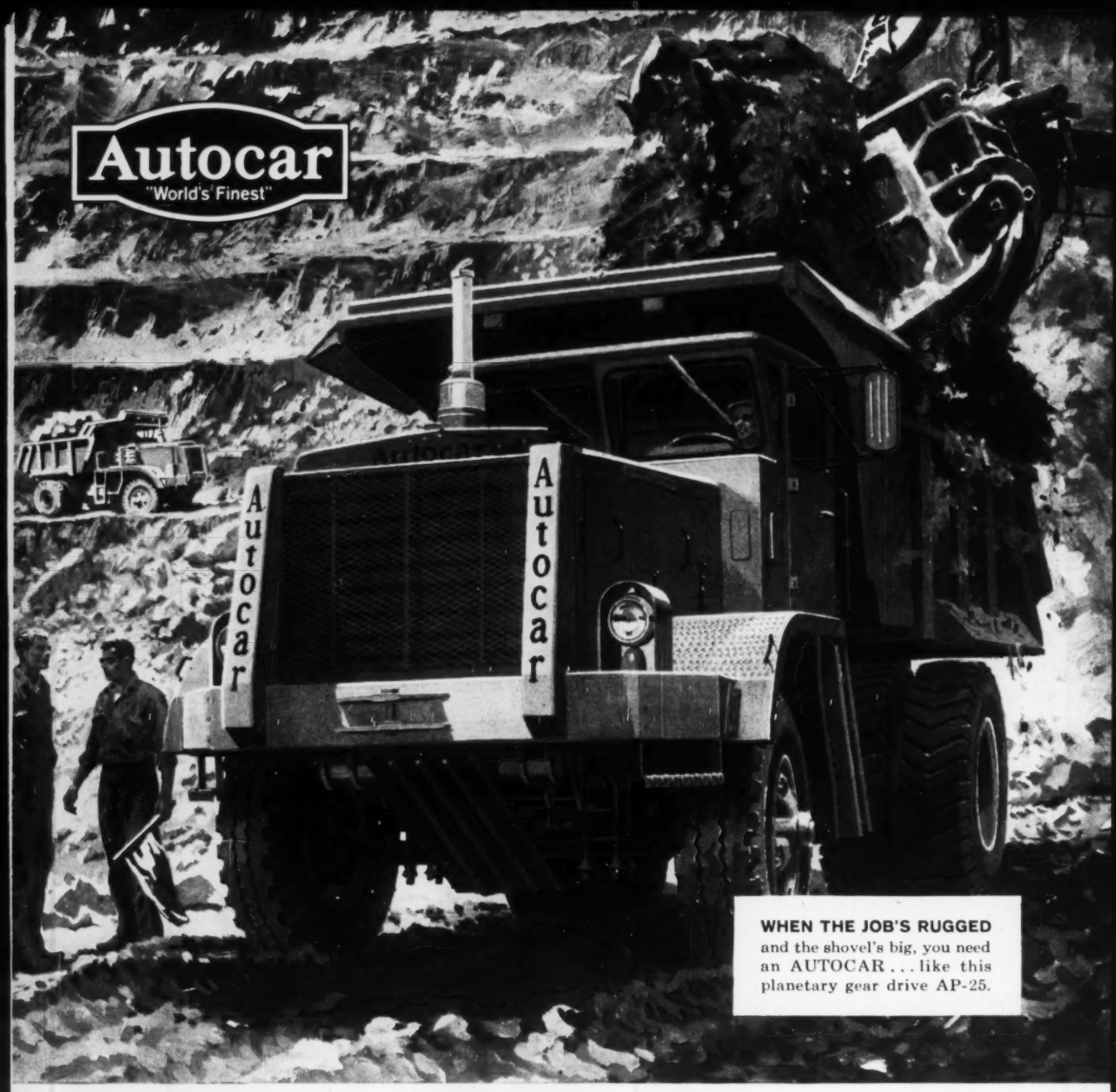

WHEN THE JOB'S RUGGED and the shovel's big, you need an AUTOCAR . . . like this planetary gear drive AP-25.

The BIG loads call for Autocar . . . nothing less

This Autocar AP-25 is a brute. Watch it take the avalanche dropped from a big shovel—or come out of a hole hauling peak tonnage. You'll see *proof* that it's built for big payloads and fast trip cycles.

Reinforced box frame. Exceptional ground clearance. High maneuverability. Plenty of power at the wheels—thanks to planetary gear drive. *All* of these outstanding features account for the AP-25's remarkable performance. Unequaled cab design virtually eliminates profit-slashing driver fatigue.

No matter what the weather or how tough the going, Autocars work harder, longer because there's no compromise in building an Autocar . . . *every* component is selected to form a balanced unit which is custom engineered to *your* operation.

Why settle for less than Autocar . . . "World's Finest."

Autocar
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Road Repairs Increase Storm Sewer Costs

Three contracts for storm sewers and related work in Manchester, Conn., will cost the town $94,348. They break down like this:

Contractor	Amount	% of Total	% Change from EE
*Jarvis Constr. Co., Manchester	$12,245	13.0	+11.3
**Jarvis Constr. Co., Manchester	14,705	15.6	− 0.8
***Maskel Constr. Co., So. Windsor	67,398	71.4	− 1.4
Total	$94,348	100.0	+ 0.1

*Storm sewer & rear land improvements—Schaller Rd.
**Storm sewer system—Leonard, Main & Armory Sts.
***Storm sewer system—Middle Turnpike E., Benton & Armory Sts. and Bigelow Brook.

James Sheekey is town engineer and superintendent of highways.

The first of these projects is a "normal" job.

Unit prices on the second project reflect the cost of highway excavation and repairs on a street with an 8 in. reinforced concrete base and a 4 in. sheet asphalt finished surface.

The 30 in. reinforced concrete pipe for the third project will be laid in a 21 ft cut for a distance of 340 ft. The 48 and 60 in. pipe will be laid in a free flowing brook. The connections require special reinforced manholes and a reinforced concrete headwall. Road surfaces must be repaired by laying on of 2 in. cold asphaltic material, and paving with bituminous concrete.

First quality brick manholes for all projects must have an inside dia of 4 ft and an 8 in. wall, all on a 6 in. concrete base with an approved invert, mortar to be a 1-2½ mix. Catch basins must be constructed of a 1-3-5 mix, and headwall of a 1-2-4 mix.

The contractors must supply night lights, and a watchman if requested by the engineer. They must place barricades around the work.

The bidding went like this:

Rear land improvements-Schaller Road

1C Jarvis Constr. Co., Manchester	$12,245
2 D. P. Mather & Son, E. Hartford	16,928
3 Seminole Constr. Co., E. Hartford	17,190
EE James Sheekey, Engr., Town of Manchester	11,000

Bids: 9-22-59 Items	Unit	Quantity	Unit Prices 1C	2
Reinf conc pipe, 12"	lf	130	$4.25*	$3.20*
15"	lf	300	5.00*	5.25*
Manhole	ea	1	300.00*	200.00*
Catch basin, type C	ea	3	250.00*	235.00*
Site grading, approx 12,000 cy	ls	job	5,500**	5,100**
Loaming, 6" deep, spread, grade & roll, approx 1,860 cy	ls	job	3,600	8,900

* Includes cost of road repairs.
** Includes repairs to lawns, fences & site area.

Commence: Oct. 26. Complete: Nov. 20.

Storm water sewer system, Leonard Main & Armory Sts.

1C Jarvis Constr. Co., Manchester	$14,705
2 A. Dzan Constr. Co., Manchester	15,946
6 Seminole Constr. Co., E. Hartford	21,130
EE James Sheekey, Engr., Town of Manchester	14,829

Bids: 9-22-59 Items	Unit	Quantity	Unit Prices 1C	2
Reinf conc pipe, 30"	lf	944	$13.30x	$15.25x
Manhole	ea	1	300.00x	250.00x
Catch basin, type C	ea	4	275.00x	200.00x
MH Pipe conns, enlarge	ea	5	150.00	100.00

x Prices reflect cost of highway excavation and repairs

Commence: Oct. 26. Complete Nov. 18.

Storm Sewer System, Middle Turnpike E., Benton & Armory Sts. & Bigelow Brook

1C Maskel Constr. Co., So. Windsor	$67,398
2 American Constr. Co., Hartford	67,867
4 Jarvis Constr. Co., Manchester	71,899
EE James Sheekey, Engr., Town of Manchester	68,379

Bids: 9-22-59 Items	Unit	Quantity	Unit Prices 1C	2
Reinf conc pipe, 12"	lf	56	$10.00	$5.50
30"	lf	808	30.00	31.30
60"	lf	640	41.00	38.00
48"	lf	244	32.00	27.25
Manhole	ea	4	750.00	575.00
special reinforced	ea	3	1,100	1,500
Catch basin, type C	ea	5	250.00	300.00
Headwall, reinf concrete	ea	1	1,000	1,600

Commence: Oct. 26. Complete: Dec 15.

Aeration Tank Overhaul Costs $636,600

The North Side sewage treatment works in Skokie, Ill., will be rehabilitated by replacing the air diffuser system, repairing tank walkways and coating walls in 12 Battery B aeration tanks. The cost to the Metropolitan Sanitary District of Greater Chicago is $636,592.

Leo Michuda & Son, Chicago, took the contract on a low bid 4.4% over the engineer's estimate, but less than 1% under the second bid. B. A. Scheidt is chief engineer of the district.

The contractor furnishes all materials except the diffuser plates.

Prevailing wages in Chicago include: carpenter $3.95; truck drivers $2.63; common laborer $3.10, all including fringe benefits.

The bidding went like this:

1C Leo Michuda & Son, Chicago	$636,592
2 Independent Constr. Co., Chicago	641,488
EE Metro San. District of Greater Chicago	610,000

Bids: 7-9-59 Items	Unit	Quantity	Unit Prices 1C	2
Air mains & diffuser systems, remove existing	ls	job	$67,120	$67,762
Air mains	ls	job	70,155	101,615
Air piping	ls	job	135,245	147,500
Diffuser plate holders	ea	2,400	32.30	22.75
Plate holders set	ea	2,376	19.65	18.13
Diffuser plates set	ea	14,256	1.50	1.50
Fillet blocks reset	ea	100	15.00	20.00
Sluice gates instal	ls	job	750.00	2,250
Walkways cap	ls	job	129,710	110,700
Drain holes, 1½" drill	ea	1,824	5.00	13.75
Walls coat	sf	180,000	0.43	0.364

Commence: 7-19-59. Completion schedule: 240 calendar days.

Swimming Pool Converts To Ice Skating Rink

At a cost of $7.27 per sq ft, a swimming pool in Waltham, Mass. is being converted to an artificial ice skating rink. The pool is approximately 180x80 ft. It will be bridged with light-weight steel bar joists overlaid by plywood and covered by waterproof membrane, over which the refrigerating piping will be laid.

In summer, this can be removed to restore the pool for swimming.

A full flooded direct expansion system will be used instead of the conventional ammonia brine type refrigeration plant. A lower operating cost is anticipated, as well as a lower initial equipment and machinery installation cost.

Metropolitan District Commission, Parks Engineering Division, Boston, believes this to be the first project of its kind in Massachusetts. Commissioner John E. Maloney is in charge of the project. Benjamin W. Fink is chief engineer and Mason J. Condon project engineer. The award at $104,566 to Kennedy & Son, Inc., Belmont, Mass., is 4.6% over the engineer's estimate.

Construction began Oct. 30 and is scheduled for completion on Feb. 1, 1960.

Florida Bay Dredged for Access Channels and Fill

This hydraulic dredging job for the Santa Rosa Island Authority, Escambia, Fla., is to provide boat channels in an existing shallow bay, to permit entry of large pleasure craft, and to fill adjacent low land to a suitable height for subdivision into water front home sites. The award at $136,720 to F. J. J. Sloat Dredging Co., Slidell, La., is 17% under the engineer's estimate. Shelby Sanders & Associates, Inc., Pensacola, Fla., is the consultant.

The approximately 648,916 cu yd of dredged material is clean sand with little or no muck, and the area to be filled contains little muck or organic matter.

The bidding on this project included:

1C F. J. J. Sloat Dredging Co., Slidell, La.	$136,720
2 Frederick Dredging Co., Inc., Foley, Ala.	193,053
3 McCullough Dredging Co., Birmingham, Ala.	207,653
EE Shelby Sanders & Asso., Inc., Pensacola	165,000

Bids: 8-26-59 Items	Unit	Quantity	Unit Prices 1C	2
Hydraulic land fill	cy	448,916	$0.2449	$0.2975
over 448,916 cy	cy	100,000	0.1339	0.2975
over 548,916 cy	cy	100,000	0.1339	0.2975

Completion schedule: 270 cal days.
Liquidated damages: $50 day

Materials and Labor Prices — Monthly Market Quotations by ENR Field Reporters

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.,* truckload del.,* per block		CONCRETE Ready Mixed 1:2:4 del. per cy
	Paper	Bulk	Mortar	Gravel, 1½ In.	Gravel, ¾ In.	Sand	1½ In.	¾ In.	1½ In.	¾ In.	Sand grav.	Lt. wgt. agg.	50 cy & over
Atlanta	$4.18a‡	$3.78a‡	$3.48a‡	$3.10e‡	$3.10e‡	$1.85‡s	$2.18s	$2.33e	$1.65r	$1.75r	$0.175o	$0.21o	$13.75g
Baltimore	4.32a	3.91a	3.46a	2.80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	.18a	.18a	13.50ru
Birmingham	4.23c	3.30c‡	.....	2.53ns	2.53ns	2.13ns	2.75s	2.75s	1.65d	1.75d	.18	.18	14.00q
Boston	5.80ip	4.52ap	4.80imp	3.00qs	3.00qs	3.00qs	1.75qs	1.85qs	.....	.....	.23o	.275ao	15.00q
Chicago	4.13ag	3.87ag	3.90/3.95g	3.75‡e	3.75‡e	3.95‡e	3.95‡e	3.95‡e	2.25‡e	2.25‡e	.26‡e	26‡e	14.00e
Cincinnati	4.68c	4.16c	4.18c	2.29‡cu	2.34‡cu	2.44‡cu	2.51‡cu	2.74‡cu	1.80u	1.80u	.20o	.25ao	14.00qr
Cleveland	1.30‡	.....	3.89‡ae	2.25ae	2.10ae	1.75ae	2.80‡g	2.80‡g	2.20‡fR	2.20‡fR	.....	23f	16.50u
Dallas	3.63a	3.25a	3.53a	2.65‡a	2.75‡a	1.90‡	2.43	2.63	.....	.....	.....	27	12.50z
Denver	4.79a	4.29a	4.79	1.95‡	2.15‡	1.42‡b	.....	3.00‡z	.....	.....	.25	.27ao	11.90
Detroit	4.25a	3.74aqq	3.72a	4.50‡abm	4.50‡abm	4.25‡abm	3.75‡abm	3.75‡abm	2.47aqaa	2.47aqaa	.22u	.25‡au	15.00eaa
Kansas City	4.23a	3.83a	4.10a	.....	.....	1.85‡a	2.00‡a	2.00‡a	.....	.....	.22a	.26c	14.00
Los Angeles‡‡	5.12eh	4.68eh	5.60c	2.56‡at	2.76‡at	2.41‡at	2.46‡at	2.46‡at	.....	.....	.19f	.305	12.46klz
Minneapolis	4.41a	4.00a	4.00a	2.70‡ae	2.70‡ae	1.60‡ae	3.95‡ae	3.95‡ae	.....	.....	.20g	.....	14.05f
Montreal	3.36‡det	3.11‡det	3.72‡det	1.90‡at	2.15‡at	2.40‡a	1.90‡†	2.15‡†	2.00†	2.00†	.20†	.28‡†	10.80k‡†
New Orleans	4.06b	3.65b	4.85b	2.61b	2.61b	2.16b†	.....	.....	1.65d	1.75d	.29r	.29	14.00o
New York	4.58aR	4.18aR	3.65aR	.....	3.20bk	2.40bkw	2.85bbb	3.10bbb	.....	.....	.265nwo	.32bwo	17.60ay
Philadelphia	4.39‡ae	3.99‡ae	3.51‡e	1.95‡a	1.95‡a	1.55‡a	2.00‡a	2.30‡a	2.25‡a	2.25‡a	.....	.225	13.90z
Pittsburgh	5.65bjk	4.62bj	5.00bjl	2.85‡aqe	2.85‡aqe	3.08‡aqe	2.00‡aqe	2.00‡aqe	2.10w	2.10w	.26rz	.26rz	15.80o
St. Louis‡‡	4.34a	3.94a	4.04a	3.40‡as	3.40‡as	2.40/3.40‡as	1.75‡s	1.75‡s	.....	.....	.255‡o	.315‡eo	13.65/14.10q
San Francisco	4.34e	3.79c	4.78c	2.02	2.02	2.12	2.17	2.17	.....	.....	.24	.28cl	13.00ew
Seattle	4.22‡a	3.60aq	4.40a	4.25‡bm	4.25‡bm	4.25‡bm	4.50‡bm	4.50‡bm	.....	.....	.324s	.45cs	13.90‡
Toronto	5.00i	4.00Rf	5.00i	2.40	2.40	2.05	2.40	2.40	2.40	2.40	.28	.275cu	13.75q

‡ Delivered. * Prices incl. dealers discount except as noted. # Add 4% sales tax. ## Add 2% Intrastate sales tax. R Revised. † Plus 8% Mun & Prov tax.

CEMENT: *a Less 10c disc. 15 days. *b Less 2% disc. 15 days. *c Less 10c disc. 10 days. *d 10c disc. 20 days. *e Truckload lots. *f Fob mill, add $14.58 to $21.31 per car switching charges. *g fob mill + freight. *h LCL. *i Less 2% disc. 10 days. *j Truck lots, fob yard. *k 100 bag lots *l over 150 sacks. *m Sold in bags only. *n Less 5% disc. 30 days. *o Plus 50c for Sat. del. *p 5-8 ton truckload. *q F.o.b. mill *s In bags & bbl. Only *t min. 7 tons

SAND, GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons up. *d Less 5c disc. 10 days. *e Less 2% disc. 10th. *f Less 2% disc. 15th. *g Less 5% for cash. *h Less than 5 tons. *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *q F.o.b. yard. *r less 5% disc. 15th. *s Less 2% disc. 10 days. *t Less 10c disc. 10 days. *u Less 5c disc. 10 days. *v Less 2% disc. 15 days. *w Less 10c disc. 15 days. *x Incl. 35c switch. charge. *y F.o.b. dock. *z 5-8 tons. *aa Less 5% disc. 15 days. *bb Less 2% 25th of month

CONCRETE BLOCK: *a Cinder. *b Waylite. *c Haydite. *d Celocrete, *e 5¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *l F.o.b. plant San Rafael. *m F.o.b. yard. *n 8 x 8 x 16. *o Less 2% disc. 10 days. *p Less 2% disc. 10th. *q Less 5% disc. 10th. *r Less 2% disc. 15 days. *s Less 2% disc. cash. *t Siporex, 7 x 8 x 16. *u Less 5% disc. 10 days. *v Less 12% disc. 15th. *w Eff. 1/1/57 *x Revised Oct. 1.

READY MIXED CONCRETE: *a 6 cu yd or over del. Man. *b 25 cu yds or more. *c 10-100 cy. *d 1-3 mi. zone add 15c for ea. add'l 1-mi. zone. *e 3,000 lb comp. *f 2,500 lb. comp., less 5% disc. 30 days. *g Less 25c disc. 15 days. *h Less 50c for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 8% mun. & prov. tax. *l 1:2½:3½ base price. *m F.o.b. yard. *n Plus escalator clause. *o Less 2% disc. 15 days. *p Less 50c disc. 15 days. *q Less 2% disc. 10 days. Add 50c per zone. *r 2000 wgt. *s Less 5% disc. 10 days. *t Incl. 50c heating. *u Less 2% disc. 15th. *v Sat. del.+50c. *w 10-100 cy. *x Del in zone 20-B. *y less 25c, 10 days. *z less 1% in 30 days. *aa 6 bag mix

CURRENT MAXIMUM PRICES AT CEMENT MILLS: Subject to 10c discount, 15 days. For paper bags add 40c per bbl., not refundable *Prices guaranteed through December 31, 1959*

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.45	Buffington, Ind	$3.40	Steelton, Minn	$3.45	Muskegon, Mich	$3.45	Toledo, O	$3.45
Clinchfield, Ga	3.45	Independence, Kan	3.25	Leeds, Ala	3.30	Saginaw, Mich	3.45	Milwaukee, Wis	3.50
Kingsport, Tenn	3.45	Hannibal, Mo	3.35	Duluth, Minn	3.45	Wyandotte, Mich	3.45	Green Bay, Wis	3.50
West Des Moines, Iowa	3.50	Northampton, Pa	3.50	Hudson, N. Y.	3.50	Buffalo, N. Y	3.55	Ironton, O	3.45
Nazareth, Pa	3.50	Universal, Pa	3.60	Alpena, Mich	3.35	Oswego, N. Y	3.60	Montreal City	2.56
Bath, Pa	3.50	Waco, Tex. (+ 10c tax)	3.45	Detroit, Mich	3.45	Cleveland, O	3.50	W. Winfield, Pa	3.60
Lesley, Pa	3.50	Glant, S. C	3.45	Howes Cave, N. Y	3.50	Alsen, N. Y	3.50	Security, Md	3.50

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 In.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	e	e	e	$28.60PS	$45.00PS	$0.2740PS	$0.235S	$0.1375wS	$0.245wS	$0.1325S	$0.1325S	$0.245
Baltimore	e	e	e	21.00t	.....	.09t	0.18t	.09wE	.18wE	.095t	.10t	0.19t
Birmingham	.....	66.00k	.....	25.12	25.69O	.1069	0.1093O	.1162w	.11880w	.1006O	.1069	0.1093O
Boston	.....	.....	.....	22.00apS	46.00apS	22.00aoS	46.00aoS	.105awF	.22awF	.14aOR	.15OR	.....
Chicago	150.00‡a	95.00‡ab	3.95/4.00‡aj	22.00b	32.00b	20.40bx	30.40bx	.10bwH	.18bwH	.08b	.....	.....
Cincinnati	.....	.....	.....	26.00SU	.....	26.00ff	.....	.1165wSU	.....	.109	.1265	.....
Cleveland	.....	89.50‡d	6.30	26.00teA	.....	26.00teA	.....	.1115wAP	.....	.....	.1180tA	.21A
Dallas	e	40.80p	e	26.90	46.35	.1138	.1983	30.50	52.45	.1100	.1138	.1983
Denver	.....	62.00a	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	116.00	.....	30.90R	.....	31.00eR	.....	.1342wIR	.....	.1000	.....	.28
Kansas City	e	e	e	18.00e‡	.....	18.00es	.....	.0825cwJ	.....	.079e	0.135e	.....
Los Angeles‡	e	e	e	21.50dmz	.....	21.50dez	.....	23.00dKz	.....	22.00dsaa	23.90‡Xv	26.30‡Xv
Minneapolis	.....	.....	3.73h	25.00	.....	26.00r	.....	115w	.....	0.105	.1375bb	.....
Montreal	e	e	e	30.50n	43.60n	.167n	.211n	17.80nwE	22.20nwE	.155n	.242n	.27nX
New Orleans	e	e	e	20.00e	.....	20.00es	.....	.095ew	.....	.085wB	.095wBL	.1905wB
New York	.....	.....	3.70f	23.99mO	45.94mO	23.99teO	45.94teO	10.61wF	20.01wF	.....	10.68w	20.11w
Philadelphia	.....	.....	.....	18.21U	.....	18.21U	.....	0.085‡10FU	.....	0.085‡10U	.....	.....
Pittsburgh	60.00k	95.00m	6.35n	31.20ns	.....	31.20uz	.....	1403‡S	.....	142‡S	1403t	.....
St. Louis‡‡	.....	.....	.....	19.74f	21.19	1825f	1825	.0890f	0915fw	0.165f	1825O	30R
San Francisco	.....	70.00	.....	22.50qdd	41.00qdd	22.50qkndd	41.00qkndd	22.50qNdd	46.50qNdd	23.25qwWdd	23.50qwXdd	2023qXdd
Seattle	.....	.....	.....	25.00s	40.00A	25.50wcc	.....	26.50KE	.....	24.25hwY	23.50hwX	45.10hwX
Toronto	.....	135.50‡f	4.50f	41.10	60.66ee	0.2075	0.2773ee	0.222w	0.2704wee	0.233	0.218Zee	273Zee

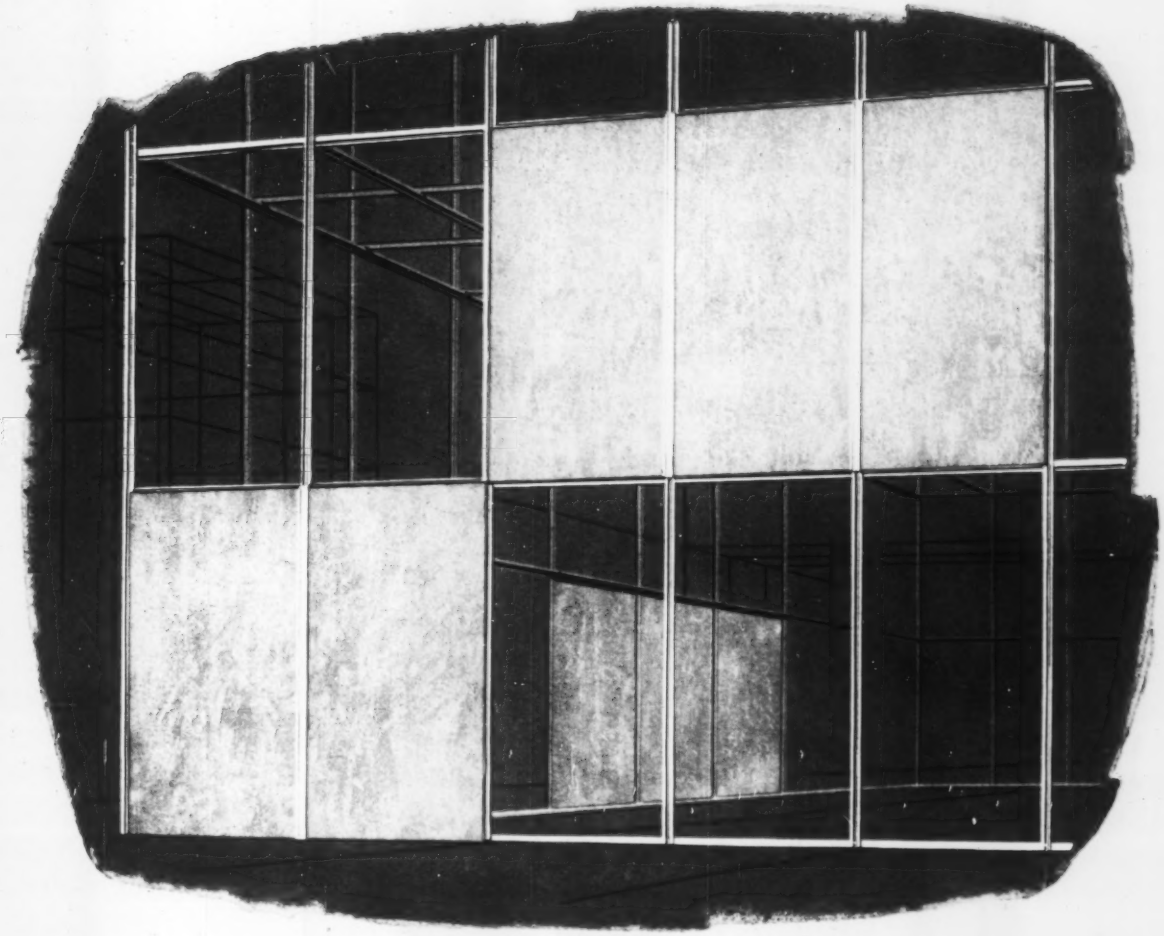
‡ Delivered. # Add 4% sales tax. ## Add 2% Intrastate sales tax. R Revised.

PAVING BRICK & BLOCK: *a Less 2% disc. 10th. *b 3 x 3¼ x 8. *c 2¼ x 8¼ x 4. *d Truckload lots. *e Not used. *f 2" interior 6 lb tr. *g Less $1 Mdisc. 15th. *h 2" tr, 8 lb. *j 3 x 3⅝ x 8½. *j 2½", 6 lb. tr. *k Used. *l Redshale. *m Pine; oak $6.57. *n Truck del. *o Less $1 M disc. 15 days. *p Used: $40; new: $80.

ASPHALTS: *a F.o.b. refinery, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segundo. *e F.o.b. Baton Rouge. *f F.o.b. Hartford, Ill. *g F.o.b. refinery, Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50-110 penetr. *l Less than 100 penetr. *m 40 300 penetr. *n F.o.b. refinery, Montreal. Fed. tax included; add 6% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60 70 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 150 300 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks *y F.o.b. Oakland. *z F.o.b. Edmonds. *A F.o.b. refinery, Cleveland, *B F.o.b. Destrehan, La. *E RC. *F Also RC. *G Also MS *H RC 0-5 incl. *I MC 4. *J MC, RC $0.095. *K MC 3, 4, & 5. *L MS. *M MC 1-5, RC 1-5, $0.0918. *N MC 3. *O Truckload. *P F.o.b. refinery, Atlanta. *Q F.o.b. Eldorado, Ark. *R Delivered within 50 mi. *S Less 2% disc. 10 days, net 30. *T Less 1% disc. 10 days. *U F.o.b. refinery. *V Less 2% disc. 15 days. *W SC 2. *X RS 1. *Y SC 1. *Z Incl. 10% Sales Tax. *aa SC 3, 4, & 5. *bb RS 3. *cc In used drums. *ddLess disc of $1 ton. ee 45 Imp. gal. drums *ff 60-150 penetration

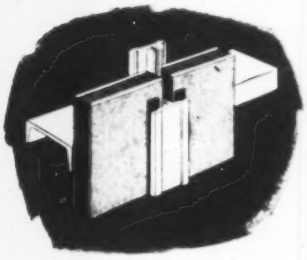
See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, Nov. 19; Next, Dec. 17.
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Nov. 26; Next, Dec. 24.
- Wage Rates, Building Board, Lath, Insulation: Last, Dec. 3; Next, Dec. 24.
- Iron & Steel Products, Pipe: Last, Nov. 12; Next, Dec. 17.



JOHNS-MANVILLE ASBESTOS TRANSITOP®

Outside finish—inside finish—with insulation in between—all go up in one operation



The above H & B aluminum molding is one of several attachment systems that may be used with Transitop.

Here are modern panel curtain walls that provide unusual durability and at the same time can save erection time and money.

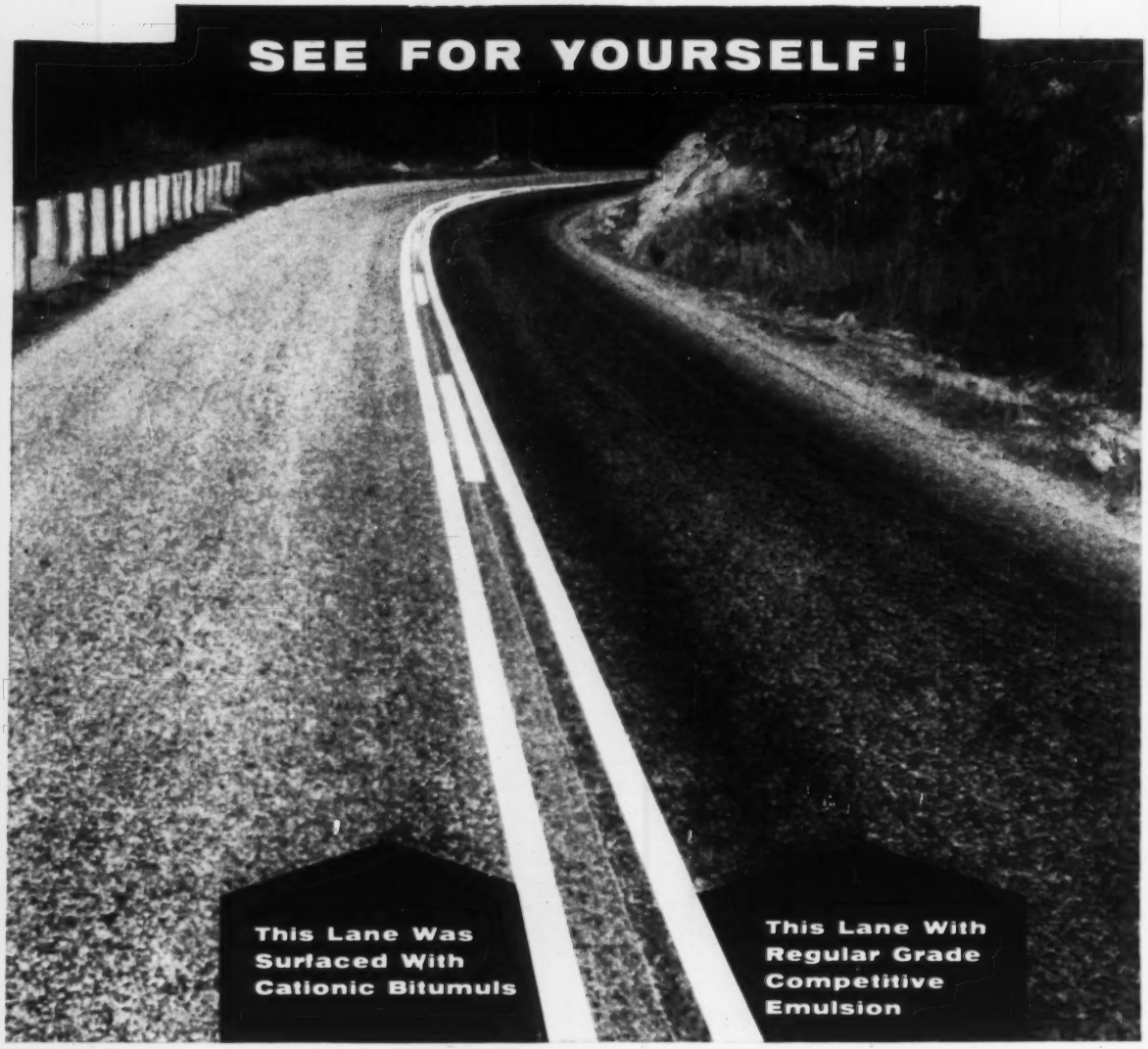
Transitop panels are big—4′ x 8′ to 12′ and 11/16″ to 2″ thick. They cover large areas fast. They're rigid and strong, yet light in weight. Dead load is reduced—and framing can be lighter in construction. Once up, Transitop continues to prove its economies—it is virtually free of the need of any maintenance.

The reason is, Transitop consists of two surfaces of rock-hard, compressed asbestos and cement with an insulating core sandwiched between. It stands up to wind, sun and rain—gives no worries of expansion and contraction.

To see the many ways Transitop can help you in your construction—to see how easily it is erected, to learn of its economies—send for the illustrated brochure on J-M Asbestos Transitop—write Johns-Manville, Box 158, New York 16, N.Y. In Canada, Port Credit, Ontario.

JOHNS-MANVILLE

JOHNS-MANVILLE JM PRODUCTS



You Get BETTER Surface Treatments With CATIONIC BITUMULS

This photograph gives visible proof of the superior performance of Cationic Bitumuls. The picture was taken on a 25-mile test section of highway in North Carolina.

Based on the success of this job, Cationic Bitumuls is being used for extensive surface treatment work throughout the State during the current construction season.

In every test made to date—whether in laboratory or field—Cationic Bitumuls has shown two outstanding qualities:

1. Unusual ability to hold aggregate, even "difficult" types.
2. Rapid initial set that minimizes damage from early rainfall.

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St. Louis 17, Mo. Inglewood, Calif. Cincinnati 38, Ohio Tucson, Ariz. San Juan 23, Puerto Rico

BITUMULS® Emulsified Asphalts • CHEVRON® Paving Asphalts • LAYKOLD® Asphalt Specialties • PETROLASTIC® Industrial Asphalts

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—LB & CA

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord. Bids opened 11/19.

Suburban Excavators, Inc., 4 New Salem St., Wakefield, Mass., LB $1,531,616 (11 bidders), b. conc. pave roadway, two 144 ft. and two 101 ft. steel beam bridges on 2.24 mi., Merrimack and Belknap Counties. CD 11/12.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **New York**—BA 12/22—Triborough Bridge & Tunnel Auth., Administrative Bldg., Randall's Island, New York, Zone 35, Throgs Neck Bridge, Contr. No. TN-12D, Bronx Plaza Headquarters bldg. Plans deposit $30. CD 1/20/55.

▲ **New York and New Jersey**—BA 12/29—Port of New York Authority, 111 Eighth Ave., New York, Zone 11, George Washington Bridge lower level expansion, Phase 5, Contr. GWB-190.028. Plans deposit $100. CD 8/15/57.

BUILDINGS—BA

▲ **Pa., Pittsburgh**—CLASSROOM—BA 12/16—General State Auth., 18 and Herr Sts., Harrisburg, classroom bldg., University of Pittsburgh, $2,000,000. Plans deposit $75. Extended date. Altenhof & Brown, 1230 Park Bldg., Zone 22, archts. A. F. Jone., c/o owner, ch. engr. CD 11/2.

▲ **N. Y., Lindenhurst**—SCHOOLS—BA 12/22—Bd. Educ. Union Federated School Dist. No. 4, Town of Babylon, Lindenhurst High School, 350 Wellwood Ave., general contract, heating and ventilating, plumbing and sanitary, electrical work. West Gates Elementary School to be located south of West Gates Ave., Proj. No. 729; Albany Avenue Elementary School, Proj. No. 730; Harding Avenue Elementary School, Proj. No. 816. Plans deposit $50 for general, $25 for trades. Frederic P. Wiedersum Assoc., 65 Roosevelt Ave., Valley Stream, archts.

HEAVY CONSTRUCTION—LB & CA

▲† **Araco Contr. & Realty Co., Inc.**, 918-22 W. Courtland St., Phila., 40, Pa., LB $1,142,590, off-site utilities for Title VIII Housing, McGuire Air Force Base, IFB-11-626-60-2 CH, WRIGHTSTOWN, N. J. Purchasing & Contracting Office, McGuire Air Force Base, Wrightstown, N. J. Bids Oct. 12. CD 9/24.

▲ **F. E. Rich**, 550 Summer St., Stamford, Conn., LB $2,622,780, est. $2,832,363 (12 bidders), Base Bid, Items A, B and C, hangar maintenance organization CRT-3, CRT-4, ENG-49-080-60-6 (6). ANDREWS AIR FORCE BASE, MD., U.S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C. Bids Nov. 25. CD 11/16.

BUILDINGS—LB & CA

▲ **Manny Connito**, 125 Boorm Ave., Jersey City, N. J., Owner Builds, $3,000,000, HOMES, 2nd section, Robin Estates, Rte. 526 and County Line, LAKEWOOD, N. J.

▲ **Babcock & Wilcox Co.**, 161 E. 42nd St., New York, N. Y., CA $6,000,000, manufacture and install cyclone furnace fired RADIANT BOILER for 2nd turbine generator unit, Charles P. Crane Power Station, near Chase, BALTIMORE, MD. Baltimore Gas & Electric Co., Lexington Bldg., Baltimore 3, Md. CD 1/8/58, under Unclassified.

▲ **Mohler Constr. Co.**, 1223 Connecticut Ave. N.W., Wash., D. C., CA $1,000,000, Loew's Columbia THEATER, 1112 F St. N.W., WASH., D. C., Columbia Palace Corp., 1540 Broadway, New York 36, N. Y. CD 6/29.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **Va., Chantilly**—UTILITY SYSTEMS etc.—BA 12/17—Federal Aviation Agency Temporary Bldg. No. 5, 16th and Constitution Ave. N.W., Wash. 25, D. C., installing six utility sys., 4 mi. taxiways, 800 x 4,000 ft. jet parking apron, 4 landing pads for helicopters. CD 5/27/58.

BUILDINGS—BA

▲ **La., New Orleans**—OFFICE—BA 12/18—Shaw, Metz & Assocs., archts.-engrs., 208 S. La Salle St., Chicago, Ill., 28 story, 421,000 sq. ft. steel, brick office, Baronne St. for J. J. Mack, c/o archts.-engrs. $8,500,000. CD 11/6.

HEAVY CONSTRUCTION—LB & CA

▲ **Bd. Comrs. Morgan City Harbor and Terminal Dist.**, City Hall, Berwick, La., rejected bids Oct. 1, oyster shell crushing plant and ancillary services, BERWICK, LA. LB $1,399,900. CD 10/14, under LB.

BUILDINGS—LB & CA

▲ **M. E. Howard Constr. Co.**, 710 Dawn St. Richmond, Va., CA $1,037,403, SIDNEY LANIER INTERMEDIATE SCHOOL, near intersection U. S. Hy. 50 and Jermantown Rd., FAIRFAX, VA. Fairfax Co., Bd. Educ., Fairfax, Va. Bids Nov. 20. CD 11/27, under LB.

▲ **Richard S. Fink Constr. Co.**, c/o United Investors Corp., owner, 50 E. 42 St., New York, Zone 17, N. Y., CA $2,000,000, 157-unit MOTEL, 3 acre tract, LeJeune Rd. and 19 St., near International Airport, MIAMI, FLA. Gilbert M. Fine, 1048 Corners Bay Harbor Island, Miami, Fla., archt.

▲ **Douglas Constr. Co., Inc.**, 1856 Douglas Blvd., Louisville, Ky., CA Est. $1,750,000, 1 story, concrete block Southgate SHOPPING CENTER, 150,000 sq. ft. parking area, OKALONA, KY. Okalona Inc., 310 W. Liberty St., Louisville 2, Ky. Sweet & Judd, 814 Republic Bldg., Louisville 2, Ky., archts.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **O., Milford**—BA 12/15—Village, Village Hall, Sections A and B, sanitary sewerage sys., treatment plant, Garfield Ave. $1,343,600. Plans deposit $20. Walter Mainion, 3307 Clifton Ave., Cincinnati, engr. CD 5/19/54.

▲ **Illinois and Missouri**—BA 1/7—City of Venice, City Hall, McKinley Bridge across Mississippi River between Venice, Ill. and St. Louis, Mo. $1,610,000. Plans deposit $15, each contract. CD 2/18.

BUILDINGS—BA

▲ **Ind., Princeton**—HOSPITAL—BA 12/22—Hospital Bd. Gibson Hospital, 2 story, pent house, brick, rein.-con., irregular shape hospital, $1,800,000. Plans deposit $100. Walker, Applegate, Oakes & Ritz, Eisby Bldg., New Albany, archts. J. M. Rotz, 1919 N. Meridian, Indianapolis, engr. CD 9/14.

▲ **O., Oxford**—WOMENS HALLS—BA 12/23—Dpt. P. Wks., State Depts. Bldg., Columbus, Womens Halls 7 and 9, Miami University. Plans deposit $20. Cellarius & Hilmer, 613 Gas & Electric Bldg., Cincinnati, archts. Fosdick & Hilmer, 613 Gas & Electric Bldg., Cincinnati, engrs. CD 7/3.

BUILDINGS—LB & CA

▲ **Brookside Builders, Inc.**, 3911 E. Broad St., Columbus, O., Owner Builds, $1,500,000, 100 HOMES, Sunbury Gardens, Sunbury Rd. and Rte. 37, COLUMBUS, O. CD 11/27.

▲ **Rust Furnace Co.**, 930 Fort Duquesne Blvd., Pittsburgh, Pa., CA slab reheating furnaces for HOT STRIP MILL, WARREN, O. Republic Steel Corp., 1405 Republic Bldg., Cleveland 1, O. CD 5/19.

▲ **B. W. Handler Constr. Co.** 223 W. Jackson Blvd., Chicago 6, Ill., CA $1,700,000, 78,000 sq. ft. RESEARCH LABORATORY and ENGINEERING BLDG., GLENVIEW, ILL. Signode Steel Strapping Co., 2600 N. Western Ave., Chicago, Ill. CD 8/3.

▲ **O. E. Madsen & Son, Inc.**, 492 Sexton Bldg., Minneapolis, Minn., LB $1,531,900, (9 bidders), general contract CATHEDRAL, LA CROSSE, WIS. St. Joseph Cathedral, 530 Main St., La Crosse, Wis. Bids Nov. 4. CD 10/1.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000, other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England — **Middle West**
Middle Atlantic — **Mississippi to Rockies**
South — **Far West**
PROPOSED WORK
Water Supply — **Public Buildings**
Sewers, Waste Disposal — **Mass Housing**
Bridges — **Commercial Buildings**
Streets & Roads — **Industrial Buildings**
Earthwork, Waterways — **Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **Texas**—BA 12/22—U.S. Eng., Box 1229, Galveston, seawall extension, Galveston Harbor and channel, CIVENG-41-243-60-29B. CD 11/27.

HEAVY CONSTRUCTION—LB & CA

▲ **MISSOURI**—State Hy. Comm., Jefferson City.

Mo.—**Millstone Constr. Co., Inc.**, 8510 Eager Rd., St. Louis, Mo., CA $1,988,152, graded earth, culverts, 3 multiple lanes of concrete pavt. 0.894 mi.; CA $1,592,732, graded earth, culverts, 3 multi. lanes concrete pavement 0.952 mi.; CA $327,049, graded earth, culverts, 3 multi. lanes of concrete pavement 0.157 mi., all in St. Louis City.

Mo.—**Koss Constr. Co.**, 510 Iowa Des Moines Bank Bldg., Des Moines, Iowa, CA $849,706, graded earth, subgrade and shoulders, cont. culverts, 24 ft. concrete pavt. 10.124 mi., Polk Co.; CA $866,920, graded earth, subgraded shoulders, culverts and 24 ft. concrete pavt. 11.742 mi., Polk Co.

Mo.—**M. E. Gillioz**, Monnett, Mo., CA $1,477,723, graded earth, culverts, 2-24 ft. concrete pavt. separated by var. width median 1.856 mi., Cole Co.

Mo.—**W. J. Menefee Constr. Co.**, 2500 West 16th St., P.O. Box 30, Sedalia, Mo., CA $1,099,114, graded earth, culverts, 2-24 ft. concrete pavt. 4.396 mi., St. Francois Co.

Mo.—**Brooks Constr. Co.**, Kahoka, Mo., CA $88,833, graded earth, culverts, gran. surf. 6.285 mi., Marion Co. Bids Oct. 27, awarded Oct. 31. CD 11/5, under LB.

▲† **U. S. Eng.**, 1709 Jackson St., Omaha 2, Neb., cancelled bids to have been opened Nov. 24, 9 operational bases for Atlas Intercontinental ballistic missile at following sites: Chugwater and La Grange, Wyo., Pine Bluff and Kimball, Neb., and Hereford, Brigsdale, Nunn, Greeley, Fort Collins, Colo., Francis E. Warren Air Force Base, Inv. No. ENG-25-066-60-13, CHEYENNE, WYO. Approx $29,000,000. Will re-advertise in about one week. CD 10/27.

BUILDINGS—LB & CA

▲ **Fischer & Frichtel, Inc.**, 8703 St. Charles Rock Rd., Overland 14, Mo., Owner Builds, $2,000,000, 96 luxury type RESIDENCES, Bellecoeur Subdivision on Ladue Rd. west of Ballas Rd., ST. LOUIS COUNTY, MO.

▲ **Walter Wirtz**, Box 906, Amarillo, Tex., CA $1,133,000, 3 ELEMENTARY SCHOOLS, AMARILLO, TEX. Amarillo Independent School Dist., 508 Johnson St., Amarillo, Tex. Short & Borah, 1707 W. 8th St., Amarillo, Tex., archt. CD 5/28.

▲ **Mellwin Constr. Co.**, 35 S. Fox, Denver, Colo., CA $2,000,000, 5 story, 150 unit MOTOR HOTEL, incl. swimming pool and restaurant, West Colfax Ave. and Youngfield St., LAKEWOOD, COLO. Golden Crest, Inc., Mellwin Constr. Co., 35 S. Fox St., Denver, Colo. Kellogg & Sayre, 847 E. Colfax Ave., Denver, Colo., archts.

▲ **Carpenter Constr. Co.**, 5301 S. Delaware St., Littleton, Colo., CA Approx. $3,000,000, 2½ story, 27 APARTMENTS, and 2 swimming pools, LITTLETON, COLO. Don E. Carpenter, 5301 S. Delaware St., Littleton, Colo.

FAR WEST

HEAVY CONSTRUCTION—BA

▲† **Calif., Beale Air Force Base**—WS 107-A-2, TITAN MISSILE SILOS, etc.—BA 1/5—U. S. Eng., 1209 8th St., Sacramento, WS 107-A-2, T-5, Titan missile silos, equip. and propellant terminals, control center, antenna, silos and terminals, powerhouse, entry, portal silos, blast locks, tunnels, etc., Complex 1A, vic. of Lincoln, Placer Co., Complex 1B, near Pennington, Sutter Co.; Complex 1C, near Chico, Butte Co. near Beale Air Force Base. Spec. 2639. ENG-04-167-60-23. $42,000,000. CD 11/11.

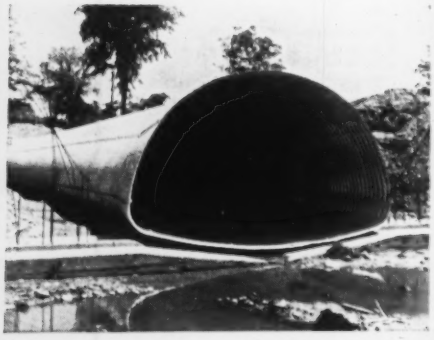
BUILDINGS—BA

▲ **Wash., Seattle** — SCHOOL — BA 12/18 — Highline School Dist. 401, 253 S. 152 St., 55,400 sq. ft. steel frame Pacific Junior High School. $1,000,000. Plans deposit $25. Steinhart, Theriault & Anderson, 1264 Eastlake Ave., archts. CD 9/23.

▲ **Calif., Livermore**—HOSPITAL—BA 1/12—Bd. Dirs. Livermore Hospital, Hall of Justice Bldg., 2365 1st St., hospital for Pleasonton and Murray Twps. $1,100,000. CD 1/16.

(Continued on page 58)

INTERIOR of completed Republic Sectional Plate Pipe-Arch is shown above. Installation is quick and easy. Structures can be installed with simple tools, unskilled labor. Only a minimum of excavation is required.



HEADWALL of reinforced concrete completed Rome, New York's drainage enclosure. When completed and backfilled, a structure such as this can eliminate maintenance and replacement worries for many years to come.

Flood-Spot Becomes Fun-Spot in Rome, New York

REPUBLIC SECTIONAL PLATE PIPE-ARCH MAKES STREAM VANISH

Once in Rome, New York, there flowed an unsightly, unwanted stream, with an unpleasant habit of overflowing its banks, creating a minor flood problem nearby. Today, the stream has vanished—whisked underground—and the surrounding "floodland" has become a pleasant recreational park. The pictures shown here illustrate how installation of Republic Sectional Plate Pipe-Arch helped to accomplish this transformation.

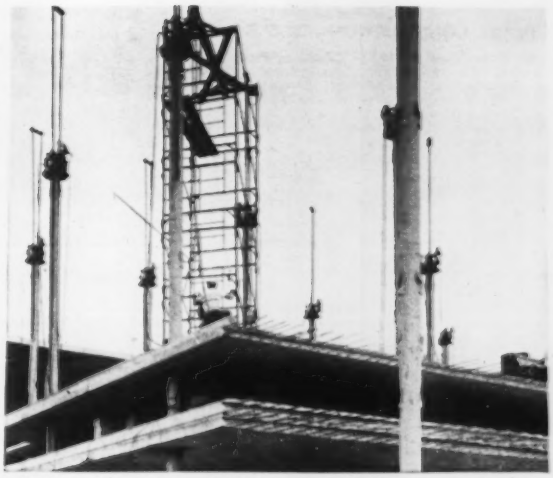
The stream was re-routed, and enclosed underground in a 391-foot Republic Sectional Plate Pipe-Arch with 15′ 10″ span, and rise of 9′ 10″. Six horizontal deflection angles were used to provide a 70° 15′ curve.

Installation was quick, economical, and efficient—with a minimum of disturbance to the city's daily routine. In addition to savings in time and money during installation, the structure will continue to pay dividends through years of trouble-free service.

Rome, New York's stream burial is but one of the many drainage problems which can be solved quickly and permanently by Republic Sectional Plate Pipe-Arch and other drainage products. To find out how these products can be used in your applications, simply contact the Toncan Drainage Products Manufacturer nearest you, or mail coupon at far right.

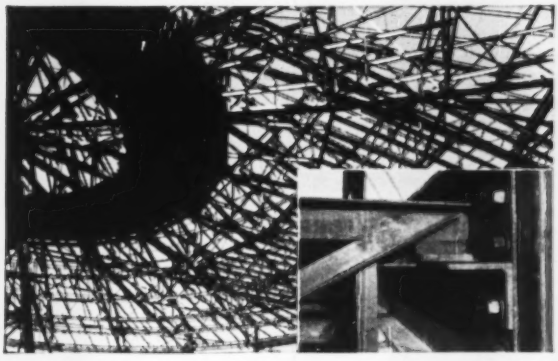
Manufacturers of Toncan Drainage Products

Bark River Culvert & Equipment Co.
Escanaba, Mich.
Beall Pipe & Tank Corporation
Portland, Ore. • Boise, Idaho
Bluegrass Pipe & Culvert Co.
Louisville, Kentucky
The Boardman Co.
Oklahoma City, Okla. • Tulsa, Okla.
Carolina Culvert & Metal Div. Florida Steel Corp.
Statesville, N. C.
Central Culvert Corporation
Alexandria, La.
Choctaw, Inc.
Memphis, Tenn. • Birmingham, Ala.
Dominion Culvert & Metal Corp.
Roanoke, Va.
Eaton Metal Products Corp.
Omaha, Neb. • Hutchinson, Kan.
Eaton Metal Products Company
Billings, Mont.
Empire State Culvert Corp.
Groton, N. Y.
Garland Steel Co.
Phoenix, Ariz.
Illinois Corrugated Culvert Co.
Bushnell, Ill.
Jansen Bridge & Supply Company
Sandusky, Mich.
H. V. Johnston Culvert Co.
Minneapolis, Minn. • Aberdeen, S. D.
Logansport Metal Culvert Co.
Logansport, Ind.
M & M Hiway Materials Co.
Columbia, Mo.
North Dakota Metal Culvert Co.
Fargo, N. D.
Northeastern Culvert Corp.
Westminster Station, Vermont
Pacific Corrugated Culvert Co.
Sacramento, Calif.
Temple City, Calif.
The Pedlar People, Ltd.
Oshawa, Ont.
Republic Steel Corporation
Culvert Division
Canton, Ohio • Harrisburg, Pa.
Charlotte, N. C. • Hammond, Ind.
Spokane Culvert & Fabricating Co.
Spokane, Wash.
Thompson Pipe & Steel Company
Denver, Colo.
Tri-State Culvert & Mfg. Div. Florida Steel Corp.
Tampa, Fla. • Decatur, Ga.
Utah Culvert Company
Ogden, Utah
Wisconsin Culvert Company
Madison, Wis.
Wyatt Metal & Boiler Works
Dallas, Tex. • Houston, Tex.



TIME AND MONEY WERE SAVED when Republic Steel Pipe was used in erecting the Tremco Building, Cleveland, Ohio. Slabs were poured on ground, then gradually hoisted up 10¾-inch diameter pipe, by means of hydraulic screw jacks. Scaffolding, elevators, etc., were eliminated. Slabs were raised at a rate of 3′ per hour. Mail coupon for details on Republic Steel Pipe.

QUICK, TROUBLE-FREE PERFORMANCE is yours when you use Republic Flexible Plastic Pipe to bring in construction water . . . or drain flooded excavations. Made of tough polyethylene, it resists abrasion and the effects of acids and alkalies. In addition, it is immune to electrolytic action. Lightweight and easy to cut or join, it can be used on job after job.



SAFE, STRONG CONNECTIONS are provided through use of Republic High Strength Bolts in dome of new Convention Arena, Detroit. High clamping force transfers loads to structural members by friction alone—an advantage that only high strength bolting provides. Installation is quick, easy, economical. Mail coupon for further details. (Giffels and Rossetti, Architects. R. C. Mahon Co., Structural Steel Contractor. General Contractor, O. W. Burke Co.)

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Address_____

City_____ Zone____ State_____

(Continued from page 55)

HEAVY CONSTRUCTION—LB & CA

▲† **R. A. Heintz Constr. Co.**, P.O. Box 1806, Portland, Ore., CA **$2,181,323**, Prosser Creek Dam, Little Truckee River, Washoe Proj., Lyon Co., Spec. DC 5197, NEVADA. Bureau Reclamation, Dpt. Interior, Carson City, Nev. Bids Nov. 12. CD 11/17, under LB.

▲† **Johnson, Drake & Piper, Inc.**, Downey, Calif., CA **$1,540,247**, headquarters bldg., Vandenberg Air Force Base, ENG-04-353-50-30, near LOMPOC, CALIF. U.S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 24. CD 11/2.

▲ **HAWAII**—State Dpt. P. Rds., 869 Punchbowl St., Honolulu, Zone 13.
Honolulu Builders, Ltd., 808 Ahua St., Honolulu, Hawaii, CA **$1,217,314**, grading, paving portion Hawaii Belt Rd. Districts of South Kona and Kau, Proj. BF-011-1 (3), Island of Hawaii. Bids Nov. 5, awarded Nov. 20. CD 11/11, under LB.

BUILDINGS—LB & CA

▲ **Paramount Builders, Inc.**, 2720 W. Bethany Home Rd., Phoenix, Ariz., Owner Builds, **$5,500,000**, 15 unit Glenfare Garden Courts, each containing 20 APARTMENTS and swimming pool, 20 acre site, Bethany Home Rd. and Central, PHOENIX, ARIZ.

▲† **Arrow Constr. Co.**, Yuma, Ariz., LB **$1,032,480** (4 bidders), DRONE TEST FACILITY, Highway 95, 10 mi. N. of YTS, near YUMA, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 18. CD 11/13.

▲ **Continental Constr. Co.**, 4671 24th St., Sacramento, Calif., LB **$1,677,000** (8 bidders), St. Pius X SEMINARY, 58 acre site south of Sacramento, incl. 250 capacity chapel, administration and classroom units, 2 story housing unit for faculty and 2 two story housing units for seminarians, near SACRAMENTO, CALIF. Sacramento Catholic Diocese, The Chancery, 1119 K St., Sacramento, Calif. Bids Nov. 25. CD 11/11.

CANADA

HEAVY CONSTRUCTION—BA

▲ **Ont., Toronto**—SUBWAY—BA 1/11—Toronto Transit Comn., 1900 Yonge St., 2,900 lin. ft. subway, two finished stations, Bloor-Danforth-University Subway, Stage I, Contract U-1. Plans deposit $100. Norman D. Wilson, Consulting Engineer, 128 Glen Rd., and Deleuw, Cather & Co. of Canada Ltd., 52 St. Clair Ave. E., engrs. W. S. Atkins & Assocs., 33 Price St., engrs. for tunnel work. CD 5/15.

BUILDINGS—BA

▲ **Ont., Toronto**—SCHOOL—BA 12/16—Bd. Educ., 155 College St., 3 story, precast Deer Park School, $1,400,000. Plans deposit $50. Pentland & Baker, 490 Jarvis St., archts. Reicher Bradstock & Assocs., 600 Eglinton Ave. E., engrs. CD 11/25/57.

HEAVY CONSTRUCTION—LB & CA

▲ **A. Johnson & Co. (Canada) Ltd.**, 1255 University St., Montreal, Que., CA **$2,700,000**, six 46,000 h.p. hydraulic turbines for hydro electric project, Saskatchewan River, Squaw Rapids, SASKATCHEWAN. Saskatchewan Power Corp., 1739 Cornwall St., Regina, Sask. Bids Nov. 30. CD 10/12.

BUILDINGS—LB & CA

▲ **Con.-Eng. Contractors Ltd.**, 267 Dundas St., London, Ont., CA **$1,087,303** (10 bidders), 2 story, bsmnt., brick, block, 150-bed COUNTY HOME addn., CLINTON, ONT. Huron County Home, Clinton, Ont. Bids Nov. 11, awarded Nov. 23. CD 10/16.

▲ **Perini Ltd.**, 150 Kent St., Ottawa, Ont., CA Est. **$2,900,000**, 7 story HOTEL, Rideau St. at Charlotte St., OTTAWA, ONT. L. Mayzel, 170 University Ave., Toronto, Ont. John L. McFarland, 1407 Yonge St., Toronto, Ont., archt. Awarded Nov. 20.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Portugal**—BA About 1/5—Commissao Executiva De Ifrastructuras Otan, Secretariado-Geral Defesa Nacional, Rua Gova da Moura 1, Lisbon, NATO Project, building constr., road work, earth moving, water and sewerage sys. $1,800,000

AMERICANS ABROAD

BUILDINGS—LB & CA

▲ **Vitro Italiana S.p.A. sub. Vitro Corp.**, 261 Madison Ave., New York 16, N. Y., U.S.A., CA Est. **$2,000,000**, design and construct 5,000 kw TRAINING REACTOR between Livorno and Pisa, ITALY. Comitato Atomico Militare Energia Nucleare, Government of Italy, Rome, Italy.

▲ **Koppers Co., Inc.**, Koppers Bldg., Pittsburgh, Pa., U.S.A., CA, blast furnaces, coke ovens, oxygen furnaces for STEEL MILL, ERGEGLI, TURKEY. Govt. of Turkey, Ankara, Turkey. Total Est. **$144,000,000.**
Blaw-Knox Co., 300 6th Ave., Pittsburgh, Pa., U.S.A., CA mechanical apparatus and process lines for STEEL MILL (Ergegli, Turkey).
Westinghouse Electric International Co., 40 Wall St., New York, N. Y., U.S.A., CA, 20,000 kw POWER PLANT, electrical equip. and drives (Ergegli, Turkey).

How to handle WET JOBS

#52 of a series

Project:
Thos. H. Allen Electric Generating Station, Memphis, Tenn.

Engineers:
Burns & Roe, Inc.

Contractor:
J. A. Jones Construction Co.

Pumping Contractor:
Wellpoint Dewatering Corp., N. Y.

SEEPAGE THROUGH STRATIFIED overburden threatens slopes of excavation next to rising river. Griffin uses "double-play" solution: vertical sand drains intercept seepage, then relay water downward to be handled by wellpoint system.

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25th YEAR

In Canada: Construction Equipment Co., Ltd. • In Venezuela: Drew Bear & Sons C. A.

PROPOSED PROJECTS

SEWERS, WASTE DISPOSAL

▲ **Conn., Farmington**—Town, Town Hall, intercepting sewers, primary and secondary treatment plant. **$1,250,000**. Marchant & Minges, 1007 Farmington Ave., West Hartford, Zone 7, consult. engrs. CD 6/20/57.

▲ **La., Gretna**—Jefferson Parish Council (P-La-3060) sewers **$9,526,150**. deLaureal & Moses Engrs., Inc., 929 Howard Ave., consult. engr.

▲ **Mass., Westborough**—Sewer Comn., Municipal Bldg., sewerage sys., treatment plant. **$2,869,000**. To go ahead in 1962.

▲ **Minn., Minneapolis**—City, City Hall,
storm drain tunnel, Marquette Ave. from Washington Ave. to Eighth St., $300,000, Constr. 1960,
storm drains 39th St. to 40th St., Dight Ave. to Mississippi River, $225,000, Constr. 1960,
storm drains, 41st to 46th Sts. from Pleasant Ave. to Lake Harriet, $226,000, Constr. 1960,
storm tunnel 28th St. E. from Mississippi River to Stevens Ave. and Freeway, $1,400,000,
storm drains 36th and 37th Sts. E. from Snelling Ave. to Mississippi River, $130,000, Constr. 1962,
storm drains 10th Ave. to 18th Ave. S.E. from 8th St. S.E. to University Ave., $200,000, Constr. 1961,
culvert Legion Lake from Legion Lake to Mother Lake, $150,000, Constr. 1961,
Loop and Freeway tunnel from Mississippi River to Loring Lake, $550,000,
storm drain Lyndale Ave. S. from Wayzata Blvd. to Kenwood Ave., $115,000, Constr. 1962,
storm drain 15th St. W. from Lyndale Ave. to Willow St., $214,000,
storm drain Lyndale Ave. S. from Franklin Ave. to 25th St., $110,000,
storm drain Park Ave. drift from Loop tunnel to EW Freeway, $125,000, Constr. 1963,
interceptor 18th St. from 2nd Ave. S. to 15th Ave. S., $250,000, Constr. possible 1960-1963,
storm drain 10th Ave. S.E. to 18th Ave. S.E. from East Hennepin Ave. to Como Ave., $125,000, Constr. 1963,
storm drain 18th Ave. S.E. to 33rd Ave. S.E. from East Hennepin Ave. to Elm St., $200,000, Constr. 1963. G. E. Bodien, city engr. W. A. Ostrem, c/o owner, asst. engr. in charge of sewer work. CD 5/10/55.

▲ **N. H., Claremont**—City, City Hall, trunk sewers and altering sewage plant $1,013,500. Baker & Wheeler, 36 State St., Albany, N. Y., consult. engrs. To go ahead 1961. CD 5/6.

▲ **Va., Martinsville**—City, City Hall, sewerage imprvt. program, **$3,500,000**. Wiley & Wilson, Courtland Bldg., Lynchburg, consult. engrs. CD 11/18.

BRIDGES

▲ **O., Toledo**—City, City Hall, repairing Anthony Wayne Bridge, **$1,362,000**, Sanzenbacher, Brigham & Miller, 3023 Sylvania, consult. engrs. Gilbert Lang, city engr. Work to start spring 1960. CD 4/24.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,
Westmoreland and Armstrong Counties—bridge over Kiskiminetas River and 10,000 ft. highway connecting Garvers Ferry and Schenley, **$4,000,000**. W. R. Froehlich, c/o owner, ch. engr.

▲ **ALBERTA**—Dpt. Hys., Parliament Bldgs., Edmonton,
Sandy Point—bridge, Hy. 41 70 mi. northeast of Medicine Hat, **$1,500,000**.

STREETS AND ROADS

▲ **CALIFORNIA**—State Div. Highways, 1120 N St., Sacramento,
Butte Co.—grading, paving to widen and reconstruct 5.3 mi. State Sign Rte. 32 between 0.2 mi. east of Glenn County Line near Hamilton City and 2.5 mi. west of Chico, incl. 6 bridges. $480,000. Bids soon.
Kern Co.—reconstruction and widening 6.3 mi. FAS County Rd. 1318 (China Lake Rd.) between U.S. Highway 395 and Ridgecrest. $260,000. Bids 1960.
Los Angeles Co.—interchange at junction San Diego and Harbor Freeways, $8,600,000.
Tehama Co.—grading, surf. to extend FAS County Rd. 1078 (Gardiner-Ferry) for 1 mi. from Rowles Rd. south of Vina to U.S. Highway 99E. $94,150. Bids in 1960.
Yuba Co.—reconstruction and realignment 2.6 mi. FAS County Rd. 526 (Marysville Rd.) between 6 mi. and 8.6 mi. north of Browns Valley. $180,000. Bids 1960.

▲ **OHIO**—State Hy. Dpt., State Dpt. Bldg., Columbus,
Licking Co.—Granville Bypass on Rte. 16. $5,000,000, Ralkoff & Assocs., Plaza Bldg., Pittsburgh, Pa., consult. engrs. CD 5/16/58.
Montgomery Co.—widening 3.59 mi. Rte. 48 between Kettering and Centerville. $1,275,000.

EARTHWORK, WATERWAYS

▲ **Alaska**—Chugach Electric Assn., 8th and Gambell Sts., Anchorage, 18,000 kw hydro dam Lower Trail Lake near Moose Pass. $9,200,000.

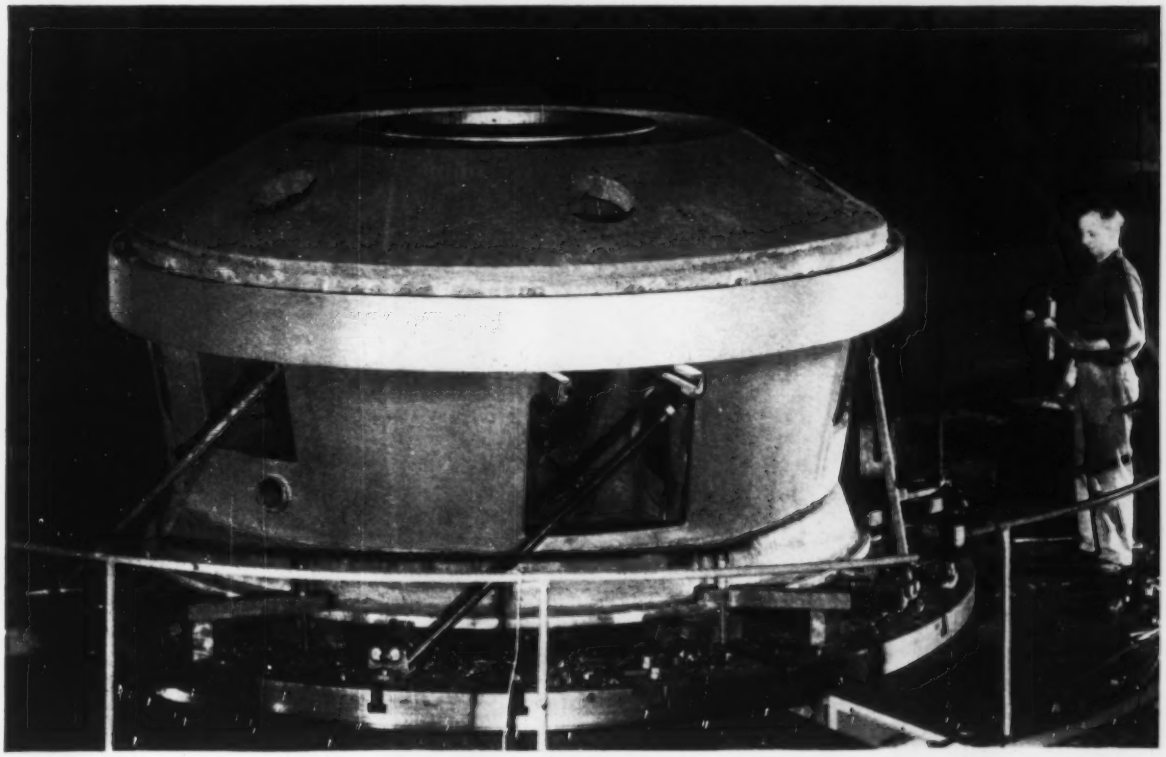
▲ **Calif., Santa Barbara**—RUNWAY etc.—Santa Barbara County, runway, taxiway, apron, lighting, wind cone, Lompoc (New) Airport. $1,000,000.

AIRPORTS

▲ **La., New Orleans**—AIRPORT IMPRVS.—Bd. Levee Comrs., site preparation for North-South Runway, taxiway extension, New Orleans Airport. $1,500,000.

(Continued on page 60)

STEEL-WELD FABRICATION . . .



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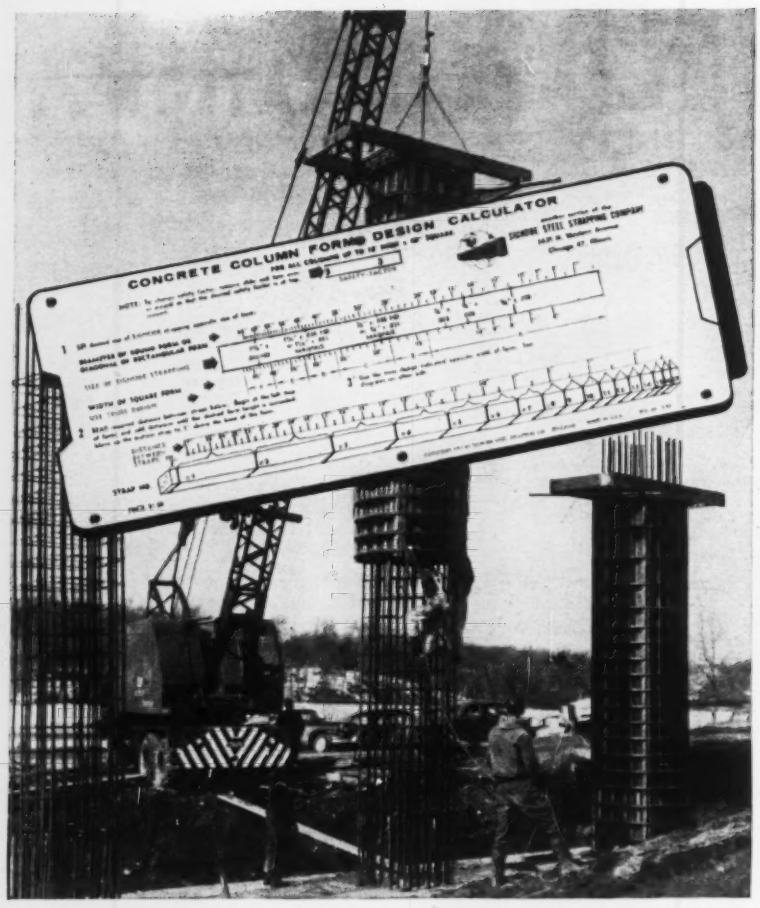

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(Continued from page 58)

▲ **La., New Orleans**—AIRPORT IMPRVS.—New Orleans Aviation Bd., East-West Runway extension, taxiway, lights, Moisant International Airport. $1,000,000. CD 3/3.

▲ **Mich., Grand Rapids**—AIRPORT IMPRVS.—City, City Hall, site preparation East-West Runway, parallel taxiway, holding apron, paving runway. $1,500,000. CD 9/3/57.

▲ **Wis., Milwaukee**—AIRFIELD IMPRVS.—Milwaukee Co., imprv. General Mitchell Field. $1,000,000.

LATIN AMERICA

▲ **Argentina, Buenos Aires**—PLANT—Goliath Werke, G.m.b.H., Bremen, Germany, plans by Goliath Hansa, Argentina, S.R.L., Matanza 3253, Buenos Aires, automotive plant. $3,350,000.

▲ **Argentina, Santa Fe**—FACTORY—Argentine Estates of Bovril Ltd., London, England, plans by Argentine Estates of Bovril Ltda., Buenos Aires, meat extract and canned meat factory. $1,330,000.

PUBLIC BUILDINGS

▲ **Alaska, Anchorage**—PUBLIC SAFETY—City, City Hall, plans by E. B. Crittenden & Assocs., public safety bldg. $1,500,000. Bids in February. CD 10/14.

▲ **Calif., Petaluma**—SCHOOLS—Petaluma High School Dist., plans by Reynolds & Chamberlain, 3833 Piedmont Ave., Oakland, high school, three Junior High Schools. $8,000,000. CD 11/13.

▲ **Calif., San Diego**—COURTHOUSE, etc.—San Diego County, Civic Center, courthouse and jail facility. $800,000, courthouse annex $500,000.

▲ **Calif., Stockton**—SCHOOLS—Lincoln Unified School Dist., 818 Lincoln Rd., $1,500,000 bond issue and $4,500,000 state loan election Jan. 26, schools.

▲ **Calif., Yuba City**—COLLEGE—Yuba Junior College Dist., Marysville, voted $2,800,000 bonds Nov. 17, college. Harold M. Hansen & Assocs., 17 and B Sts., Marysville, archts. CD 9/16.

▲ **Del., Newark**—DORMITORIES—University of Delaware plans by Howell Louis Shay & Assocs., Packard Bldg., Phila., Pa., five 3 story dormitories. $2,500,000.

▲ **Fla., Leesburg**—HOSPITAL—Leesburg Hospital Assn., c/o Reynolds, Smith & Hills, archts., 227 Park St., Jacksonville, 105 bed hospital, $1,600,000.

▲ **Ill., Belleville**—SCHOOLS—Belleville Elementary School Dist. 118, Bd. Educ., 700 Lucinda St., $2,673,000, bond election Dec. 19, Junior High on Royal Heights Rd., Abraham Lincoln Elementary School, Douglas Elementary School near Carlyle Rd. and East Main St., Union School Addn. Pearce & Pearce, Inc., 721 Olive St., St. Louis 1, Mo., archt.

▲ **Ill., Ottawa**—HIGH SCHOOL—City, City Hall, voted bonds Nov. 17, Ottawa High School addn. $1,800,000. CD 10/20.

▲ **Ind., Warsaw**—SCHOOL—Warsaw Community Schools, plans by Perkins & Will Assoc., 309 W. Jackson St., Chicago, Ill., high school, E. Smith St. $1,800,000. D. H. Lessig Engineers, Warsaw, consult. engrs. CD 4/24.

▲ **Iowa, Ames**—LIBRARY—State Bd. Educ., State Office Bldg., Des Moines, plans by Brooks-Borg, Hubbell Bldg., Des Moines, library addn. $1,312,500. Bids February 1960. CD 9/29/54.

▲ **Iowa, Iowa City**—MEMORIAL UNION—State Bd. Regents, State Office Bldg., Des Moines, plans by Tinsley, Higgins, Lighter & Lyon, 526 Liberty Bldg., Des Moines, Memorial Union Bldg. addn., University of Iowa, $4,500,000. Bids in late fall 1960. CD 1/24/56.

▲ **Iowa, Marshalltown**—INFIRMARY—State Bd. Control, State Capitol, Des Moines, plans by Brooks & Borg, 815 Hubbell Bldg., Des Moines, and Ralph Arnold, c/o owner, infirmary bldg. at Iowa Soldiers Home, $1,500,000. CD 3/17/53.

▲ **Iowa, Mason City**—SCHOOL—Bd. Educ., plans by Waggoner & Waggoner, 15 S. Federal St., and Bergland & Bianco, 11½ S. Federal St., 1 and 2 story, 105,500 sq. ft. masonry steel frame Junior High School. $1,350,000. CD 3/13.

▲ **Ky., Morehead**—HOUSING—Morehead Municipal Housing Comm. plans by James Allen Clark, Brown Proctor Hotel, Wichester, 100 unit housing. $1,400,000. M. B. Holladay, 645 Montclair Dr., Lexington, consult. engr.

▲ **Mass., Foxboro**—SCHOOL—Town, Supt. Schools, high school. $2,000,000. Constr. 1960.

▲ **Minn., Canby**—SCHOOLS—Bd. Educ., Independent School Dist., No. 891, plans by Matson & Wegleitner, 2323 Wayzata Blvd., Minneapolis, elementary school, $800,000; high school addns., remodeling, $500,000. Constr. probably 1960.

▲ **Minn., St. Cloud**—PHYSICAL EDUCATION—State Dpt. of Administration, 19 State Capitol, St. Paul, plans by Traynor & Hermanson, St. Cloud, physical education, St. Cloud State College. $1,970,000. Constr. 1962-1963.

▲† **N. H., Hanover**—LABORATORY—U. S. Eng., 424 Trapelo Rd., Waltham, Mass., Cold Regions Engineering Laboratory. $3,250,000. Bids about Dec. 1. CD 9/17/57.

▲ **N. J., Collingswood**—SCHOOL—Bd. Educ., bond election Dec. 17, high school addn. $1,500,000. Howell, Lewis, Shay & Assocs., 15th and Chestnut Sts., Phila., Pa., archts. CD 10/12.

▲ **N. J., Glassboro**—LIBRARY ADDN., etc.—State Teachers College, Administration Bldg., library addn.,

(Continued on page 62)

Where SPECIFICATIONS call for . . .

PHOTOS: *Left*—Tamping fill around 4 ft. concrete pipe culvert on New York State Thruway Extension near West Seneca, N. Y. *Right*—Compacting earth fill around abutment on Benbrook Dam construction near Fort Worth, Texas.

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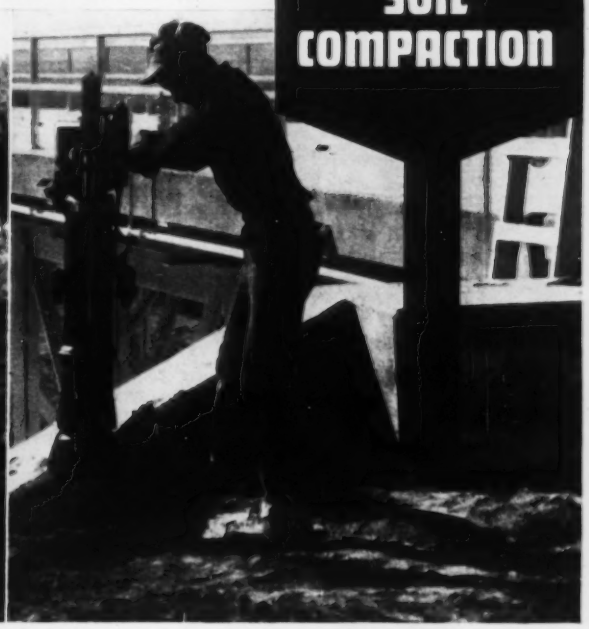

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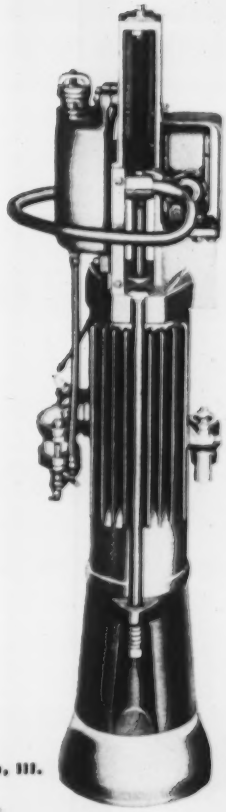

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music, gymnasium and administration bldg. $1,750,000. CD 10/21/54.

▲ **N. J., Jersey City**—LABORATORY, etc.—State Teachers College, 2039 Blvd., Jersey City, laboratory and main bldg. addn. $3,500,000.

▲ **N. J., Upper Montclair**—LIBRARY AND ADMINISTRATION, etc.—Montclair State College, Normal Ave. and Valley Rd., library and administration, auditorium and classroom addns. $3,250,000.

▲ **N. J., Vineland**—SCHOOL—Bd. Educ., voted referendum on bonds and project Nov. 3, high school. $3,750,000. Ralph E. Hacker, 854 River Rd., New Milford, archt. CD 9/14.

▲ **N. Y., Mount Vernon**—SCHOOL—Bd. Educ., 257 Fourth Ave., bond election Dec. 16, high school. $7,500,000.

▲ **N. Y., New York**—HOUSES—New York City Housing Auth., 299 Broadway, Zone 7, plans by Harry M. Prince, 101 Park Ave., Andrew Jackson Homes Proj. 5-43, seven 16 story apartments, Park and Courtland Aves., East 156th and East 158th Sts., Bronx Boro. $14,700,000. CD 3/5/58.

▲ **N. Y., Pearl River**—SCHOOL—Village, Village Hall, voted $2,577,000 bonds Nov. 19, high school. $2,500,000. Caudill, Rowlett & Scott, P. O. Box 60, Corning, archts. CD 10/19.

▲ **N. Y., Valley Stream**—SCHOOLS—Central High School Dist. No. 1, Fletcher Ave., voted bonds Nov. 17 school expansion program. $3,680,000. CD 10/1.

▲ **N. Y., West New Brighton**—HOUSES—New York City Housing Auth., 299 Broadway, New York, Zone 7, plans by Irwin Clavan, 350 5th Ave., New York, Zone 1, 2 story, brick houses, eight 8 story apartments, West New Brighton Houses, Proj. NY5-40, Castleton and Henderson Aves., Alaska and Campbell Sts., Richmond Boro. $10,000,000. CD 3/5/58.

▲ **N. C., Davidson**—SCHOOL—Davidson Co. Bd. Educ., Lexington, Consolidated High School for Thomasville, Pilot and Fairgrove. $1,000,000. CD 2/27/50.

▲† **N. C., Greenville**—TRANSMITTER—U. S. Information Agency, 1776 Pennsylvania Ave. N. W., Wash., D. C., transmitter, Voice of America. $26,000,000. Bids about Dec. 1 on site work.

▲ **O., Canton**—SCHOOLS—Bd. Educ., Plain Local School Dist., 1215 44th St. NW, plans by Lawrence, Dykes & Assocs., 125 Valleyview NW., schools, $2,550,000. CD 11/21

▲ **O., Kent**—CLASSROOM, etc.—Ohio Dpt. P. Wks., State Depts. Bldg., Columbus, plans by Fulton, Dela-Motte, Larson & Nassau, 6014 Euclid Ave., Cleveland, Zone 3, classroom, $1,840,000; heating plant addn., $250,000, Kent University. CD 8/6.

▲ **S. C., Anderson**—SCHOOL—Anderson County School Dist. 5, Courthouse, plans by John Lambert & Assocs. Anderson, 100,000 sq. ft. girls' high school. $1,000,000. CD 2/6.

▲ **Tenn., Knoxville**—DORMITORY—University of Tennessee, plans by Baumann & Baumann, Inc., 813½ Market St., 1,000-man dormitory. $3,200,000. CD 7/20.

▲ **Tex., Lockhart** — SCHOOLS — Lockhart Independent School Dist., high school remodeling into Junior High School. $400,000; high school $600,000.

▲ **Tex., West Columbia**—SCHOOLS—West Columbia-Brazoria Ind. School Dist., plans by Donald Barthelme, 6910 Fannin St., Suite 235 N., Houston, Senior and Junior High Schools rebuilding, school addns., remodeling. $1,670,000. CD 7/17.

▲ **Ont., Hagersville**—HOSPITAL—West Haldimand Hospital Bd., Jarvis, 80 bed hospital, $1,000,000.

▲ **Que., Quebec City**—SCHOOL—Catholic School Comn. of Quebec, 898 Richelieu St., plans by Paul Emile Mathieu, 414 Boisseau St., secondary school for boys of St. Saveur and St. Malo Parishes, $800,000-$1,000,000.

COMMERCIAL BUILDINGS

▲ **Alaska, Anchorage**—HOSPITAL—Providence Hospital, Anchorage, plans by Charles Luckman Assocs., 9220 Sunset Blvd., Los Angeles, Calif., 4 story, 77,400 sq. ft. hospital $3,500,000. CD 9/4/57. To go ahead 1960.

▲ **Colo., Denver**—RECREATION CENTER—Aqua Bowl Motel, Inc., 320 S. Colorado Blvd., plans by Powers, Daly & DeRosa, 3667 Atlantic Ave., Long Beach, Calif., recreation center, incl. 80-lane bowling alley, and swimming pool, Colorado Blvd. and Kentucky St. $2,000,000.

▲ **Colo., Denver**—HOTEL, etc.—M. Ben Gwinn, 8075 E. 40 Ave., 8 story, hotel and swimming pool, E. Colfax and Grant Sts. $2,000,000.

▲ **Colo., Denver**—HOSPITAL—Rocky Mountain Osteopathic Hospital, 4701 E. 9 Ave., plans by Fisher & Cavis, 827 Denver National Bldg., 3 story, 43,800 sq. ft. hospital addn. $1,000,000.

▲ **Conn., Danbury**—SHOPPING CENTER—Par-Hall Holding Co., Inc., Great Plain, 10,000 sq. ft. shopping center, Rte. 6, Beaver Brook. $1,400,000.

▲ **Conn., Hartford**—OFFICE—Connecticut Bank & Trust Co., 760 Main St., plans by Charles F. DuBose, 95 Woodland St., and Kahn & Jacobs, assoc. archts., 2 Park Ave., New York, N. Y., 16 story, 250,000 sq. ft. office, Front and Market Sts., Constitution Plaza. $6,500,000. CD 6/9.

▲ **Conn., New Haven**—SCHOOL—Yale University, 119 College St., plans by Philip C. Johnson, 375 Park Ave., New York, N. Y., 8 story geology school, Pierson Sage Square. $3,000,000. CD 10/9/57.

▲ **Conn., Wallingford** — THEATRE — Connecticut Performing Arts Foundation, Old Hartford Tpk., plans by John M. Johansen, 70 Elm St., New Canaan, theatre, restaurant. $5,000,000. Fred S. Dubin Assocs., 178 S. Whitney St., Hartford, consult. engrs. CD 7/29.

▲ **Fla., St. Petersburg**—BANK—First National Bank, Central Ave. and 4 St., plans by Alfred Easton Poor, 400 Park Ave., New York, N. Y., bank addn. $1,000,000.

▲ **Ga., College Park**—SHOPPING CENTER—Scott Development Co., 1239 N. E., Main St., plans by Heery & Heery, 1366 Peachtree St. N. E., Atlanta, shopping center, $2,000,000.

▲ **Ga., Marietta**—OFFICE—Metropolitan Center, Inc., 221 N. Fourlane Highway, plans by Preston McIntosh, Henry Grady Bldg., Atlanta, office bldg., $1,000,000; 280,000 sq. ft. shopping center, $2,500,000; motor hotel $500,000.

▲ **Hawaii, Honolulu**—HOTEL—Gordon Damon, Lyman J. Blank, George Scranton, 2927 McKinley St., plans by Minoru Yamasaki, archts.-engrs., 1025 E. Maple St., Birmingham, Mich., 10 story Hotel. $2,000,000.

▲ **Ill., Rockford**—COLLEGE—Rockford College, plans by Hubbard & Hyland, Rockford, 3 dormitories, living and recreational facilities bldg., Campus, E. State St. and Alpine Rd. $2,100,000. CD 9/9/58.

▲ **Ind., Danville**—HOMES—Danville Development Corp., c/o Dean Stevens, Danville, 188 homes on 53-acre site called Sunny Acres, west of Mackey Rd. and north of Klondike Ave. $2,000,000.

▲ **Mass., Cambridge**—VISUAL ARTS—Harvard University, Cambridge, plans by Le Corbusier, c/o owner, visual arts bldg. $1,500,000. CD 2/21/57.

▲ **Mass., Ipswich**—NOVITIATE HOUSE—Sisters of Notre Dame, Newton St., Waltham, plans by Chester F. Wright, 662 Main St., Waltham, novitiate house. $3,000,000. Constr. 1960.

▲ **N. J., Newark**—LABORATORIES, etc.—Newark College of Engineering, 323 High St., laboratories, student center any gymnasium, library addn. $7,000,000.

▲ **N. J., Somerville**—HOSPITAL—Bd. Trustees Somerset Hospital, Rehill Ave., plans by Ferrenz & Taylor, 1451 Broadway, New York, N. Y., wing addn. to hospital, $2,000,000. CD 4/10.

▲ **N. Y., Buffalo**—APARTMENT—Benderson Development Co., 123 Franklin Ave., 12-15 story 130-150 unit apartment, Delaware Ave. between Lexington and Highland Aves. $2,000,000. Constr. in Spring or Summer.

▲ **N. Y., New York**—OFFICE IMPRVS., etc.—New York Telephone Co., 140 West St., Zone 7, plans by Voorhees, Walker, Smith, Smith & Haines, 101 Park Ave., Zone 17, alterations and air-conditioning office bldg. at site $2,500,000.

(Continued on page 66)

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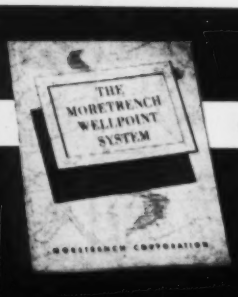

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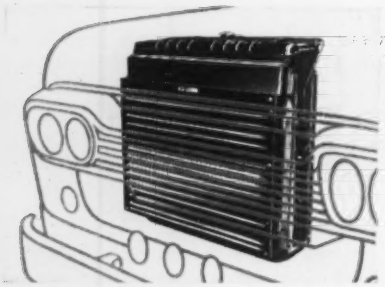
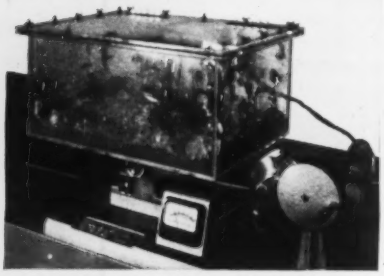
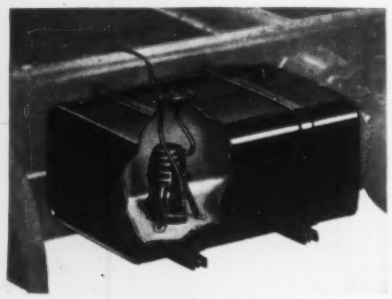
NOW! Certified Durability



CLOSER TEMPERATURE CONTROL obtained with automatic radiator shutters means longer engine life, more efficient operation. Temperature variation between 167° and 187° with shutters as compared to 102° to 181° without shutters was reported and certified in loaded vehicle road tests.



LONGER WIRING HARNESS LIFE is the direct result of Ford's greatly improved electrical wiring system for 1960. Ford's '60 wiring harness and the 1959 wiring harness were subjected to shaker table tests plus constant exposure to oil and water vapors, and temperatures of 200°. Certified test results show a threefold increase in 1960 wiring harness life.



INCREASED FUEL PUMP RELIABILITY is an added benefit from Ford's submerged-type electric fuel pump. Certified results of dynamometer tests showed no vapor lock with Ford's electric pumps at temperatures up to 200°, whereas incipient vapor lock with mechanical fuel pump resulted in a power loss of 9% under same conditions.

It's a fact! Numerous reports from high-mileage operators of Super Duty Trucks attest to Ford's outstanding durability. Studies by an independent research firm provide certified proof that these models are even more durable for 1960.

Ford Super Duty Trucks have earned a reputation for exceptional performance and durability since their introduction two years ago. Shop service records of many leading fleets show Super Duty tractors with mileage readings between 150,000 and 250,000 and no repairs other than normal maintenance. Similar testimony to the dependability of these Big V's by other satisfied users is being added each month. Is it any wonder that '59 sales of these units were more than double those of 1958?

And for 1960, the Ford Super Duties offer additional refinements. Bigger optional axles and increased GVW's to permit greater payloads and more profitable operation. Automatic radiator shutters to keep the engine temperatures within the most efficient operating range, improved submerged-type electric fuel pumps to prevent vapor lock, and redesigned wiring for more reliable operation are typical of the improvements to be found in these units.

The changes offered for 1960 were tested and evaluated by a leading research organization. Certified results of the studies by this impartial firm (name available on request) provide proof that Ford's Super Duty Trucks are even more dependable.

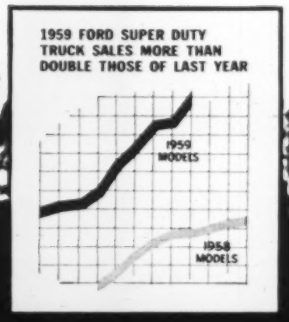
- **Certified Durability through closer temperature control!** Independent research engineers certify that Ford's thermostatically controlled radiator shutters kept water temperature between 167° and 187° in severe mountain grade operation. The test truck with shutters blocked open under same operating conditions had a temperature range from 102° to 181°. The temperature variation of only 20° with shutters means less expansion and contraction in block and heads. Higher, more constant temperatures permit oil to circulate more freely, reducing internal friction. All these factors contribute to longer engine life.

- **Certified Reliability with longer-lived electrical system!** Thicker insulation on wires resists deterioration by heat, oil and gasoline. Asphalt-impregnated loom and plastic-coated mounting clips protect against abrasion. Certified results prove that the 1960 wiring harness has three times longer life.

- **Certified Reliability with Ford's submerged-type electric fuel pump!** Dynamometer tests of engines with submerged-type electric fuel pump and conventional mechanical type showed that vapor lock was non-existent with Ford's electric pumps at temperatures up to 200°, whereas incipient vapor lock with mechanical pump resulted in a power loss of 9% at an underhood temperature of 200°.

Endurance tests were run on alternators, two-speed axle speedometer adapters and other related components with similar results. Get all the facts at your Ford Dealer's now!

in Ford Super Duties!



"Our first Ford C-1000 tractor has logged 190,000 trouble-free miles since March of '58,"

says Robey W. Estes, Vice President and General Manager of Estes Express Lines, Richmond, Va. "We haven't had a single road failure and we only bring it into the shop for regular preventive maintenance work once a month.

"We use the 477 engine and find oil consumption is exceedingly low . . . only one or two quarts added between 3000-mile oil changes. Engine compression at 190,000 miles is still high and fairly equal and our drivers say that power and pep are at about the same level as when the truck had been run only 60,000 miles.

"We are grossing between 52 and 56,800 pounds with our Ford Tilts. They are giving about the same gas economy and better oil mileage than other makes in our fleet. We bought our fourth Ford C-1000 tractor last month and hope to add more soon."

FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . BUILT TO LAST LONGER, TOO!

(Continued from page 62)

▲ **N. Y., New York**—APARTMENTS, etc.—Olympic Estates, 144 E. 44th St., Zone 17, plans by Wechsler & Schimenti, 118 E. 25th St., Zone 10, apartment, garage and stores, 827-35 Second Ave. $2,000,000.

▲ **N. Y., Niagara Falls**—SCIENCE BLDG.—Niagara University, Lewiston Rd., science bldg. $1,000,000. Scheduled for completion in 1961.

▲ **N. C., Chapel Hill**—UNIVERSITY ADDNS.—University of North Carolina, plans by McMinn, Norfleet & Wicker, 2828 Lawndale Dr., Greensboro, foreign languages bldg., $750,000, CD 2/16; plans by J. N. Pease & Co., 119½ E. 5th St., Charlotte, geology and geography bldg., $750,000, CD 2/16; plans by Six Associates, 1095 Hendersonville Rd., Asheville, botany bldg., $750,000; plans by F. Carter Williams & Assocs., 133 Fayetteville St., Raleigh, School of Public Health, $1,000,000; plans by Graves & Toy, 118½ E. 4th St., Charlotte, 2 dormitories for men and addn. to dormitory for nurses, $3,983,333; plans by Marion A. Ham, Snow Bldg., Durham, Hill Hall addn. $485,000, and Swain Hall addn., $425,000.

▲ **O., Cleveland**—CHAPEL—Old Stone Church, Public Square, plans by Schafer, Flynn & Williams, 1740 E. 12th St., Zone 14, 4 story chapel, Ontario St. $1,000,000. Constr. next spring.

▲ **O., Kettering**—HOMES—Twelfth Ohio Builders, 2424 Far Hills Blvd., Dayton, 156 homes, Rosewood Gardens Plot, Dorothy Lane. $2,500,000.

▲ **O., Sunbury**—HOMES—Brookside Builders, Inc., 3911 E. Broad St., Columbus, 100 homes, Sunbury Gardens, east side Rte. 37. $1,600,000.

▲ **O., West Alexandria**—HOMES—Patterson Development Corp., 25 S. Main Bldg., Dayton, 225 homes. $4,000,000. Three year program to start in 1960.

▲ **Ore., Portland**—RETIREMENT HOME—Carlson Retirement Home, 2645 NE 28th Ave., plans by Walter E. Kelly, 808 E. 28th Ave., 7 story retirement home, 112th Ave. and Halsey St. $3,000,000. CD 11/11/58.

▲ **Pa., Harrisburg**—OFFICE—Riverside Corp., c/o A. B. Myers, 1801 N. Front St., office, Front and Maclay Sts. $2,000,000.

▲ **Tex., Houston**—SHOPPING CENTER—Houck Interests, Harvey R. Sr. & Harvey R. Jr. Houck, 3738 Bellaire Blvd., plans by Irving R. Klein & Assocs., proj. archts., 1317 Austin St., 175,000 sq. ft. masonry shopping center 25 acre Witte Rd. Spring Branch area. $2,500,000.

▲ **Tex., Houston**—HOMES—Meyerland Co., 4703 Jason St., 109 homes Sec. 8-C Meyerland Subdivision $3,094,000.

▲ **Tex., Houston**—SHOPPING CENTER—Meyerland Co., 4703 Jason St., plans by McCleary & McCormick, 3270 Sul Ross St., 120,000 sq. ft. masonry shopping center, S. Post Oak Rd., $1,750,000; hard paving for shopping area and auto center $100,000; bldg. site earthwork, incl. grading, filling, leveling $60,000.

▲ **Tex., Houston**—BUSINESS CENTER—Corbin J. Robertson & Assocs., 1st City Natl. Bank Bldg., downtown business center, 6 blks. west of Main St. Over $15,000,000. Wilton Becket & Assocs., 5657 Wilshire Blvd., Los Angeles, Calif., consult. engrs.

▲ **Tex., San Antonio**—HOSPITAL—Nix Hospital, 414 Navarro St., 40 bed hospital addn. and addnl. facilities, addnl. professional offices. $1,500,000.

▲ **Va., Danville**—SHOPPING CENTER—John W. Daniel, 3232 Riverside Dr., shopping center. $3,000,000. CD 1/28/49.

▲ **Va., Richmond**—HOUSE DEVELOPMENTS—Ralph A. May, 4213 Hanover Ave., 750 house development near Kingsland Creek, R.F.D. 10, $7,500,000; sewage disposal plant on 8 acre parcel near Kingsland Creek, R.F.D. 10, $100,000.

▲ **Va., Richmond**—APARTMENT-MOTEL—The Palatine Corp., Dr. DuPont Guerry III and Charles L. Williams, 2015 Monument Ave., apartment-motel, Church Hill. $1,000,000.

▲ **Wash., Kent**—HOUSES—Rigby Development Co., 4304 S. 178 St., Seattle, 120 houses in Valley Heights, $1,500,000. Constr. in Spring.

▲ **B. C., West Vancouver**—REGIONAL CENTRE—Park Royal Shopping Centre Ltd., 1030 W. Georgia, Vancouver, plans by Percy Gray, 515 Marine Bldg., Vancouver, and John Graham Co., 1426 5th Ave., Seattle, Wash., U.S.A., archt-engr., Regional Centre, incl. 5-unit 16 to 24 story apartment, shopping centre, 4 story hotel, medical-dental centre, parking, $32,000,000.

▲ **Ont., London**—STORE—F. W. Woolworth Co., 33 Adelaide St. W., Toronto, 6 story store, Dundas St. $1,000,000. CD 4/27/55.

▲ **Que., St. Timothee**—SHOPPING CENTRE—Immeubles Beaudoin & Co., Inc., 6856 Pie IX Blvd., Montreal, 40 store shopping centre, parking lot, Blvd. Mgr. Langlois. $2,500,000.

▲ **Que., Doriaa**—CLUBHOUSE—Summerlea Golf & Country Club, Lachine, clubhouse, 36 to 45 hole course. $1,000,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Los Angeles**—FLOUR MILL—The Pillsbury Co., Pillsbury Bldg., Minneapolis, Minn., flour mill, 1436 Goodrich Blvd., East Los Angeles, $1,000,000.

▲ **Calif., Newark**—PLANT—Pacific Car & Foundry Co., 4 and Factory, Renton, Wash., trunk mfg. plant for Peterbilt Motors Co., subsidiary of Pacific Car. $2,000,000. Bechtel Corp., Admin. Dpt., 220 Bush, San Francisco, consult. engrs. CD 4/3.

▲ **Ind., Gary**—ROLLING MILL—United States Steel Corp., 70 Broadway, New York 6, N. Y., 160 in. and 210 in. wide plate rolling mill at Gary Steel Works. CD 3/19/56.

▲ **O., Warren**—PLANT—Copperweld Steel Co., Rick Bldg., Pittsburgh 19, Pa., consumable electrode vacuum furnace, soaking pits addn., annealing and heat treating furnaces and material handling, at Warren plant. $5,300,000. CD 9/16/55.

▲ **Pa., Carnegie**—SLITTING FACILITIES—Copperweld Steel Co., Frick Bldg., Pittsburgh, Zone 19, addnl. slitting facilities, Superior Division Plant. $2,400,000.

▲ **Pa., Glassport**—PLANT—Copperweld Steel Co., Frick Bldg., Pittsburgh, Zone 19, wire and cable division plant expansion. $3,500,000.

▲ **Pa., Hatboro**—MFG. and DISTRIBUTION CENTER—Vick Chemical Co., Roberts and Pulaski Aves., Phila., mfg. and distribution center $2,000,000. Bids in Summer 1960.

▲ **Tex., Arlington**—PLANT—General Printing Ink Co. (Div. of Sun Chemical Corp.), 750 3 Ave., New York N. Y., plant, 4½ acre site, near here. $1,000,000.

▲ **Va., Covington**—POWER BOILER and GENERATOR PLANT—West Virginia Pulp & Paper Mfg. Co., power boiler and generator plant. $3,000,000.

▲ **Va., Hopewell**—PLANT—Firestone Tire & Rubber Co., Hopewell, polypropylene plant. $1,500,000.

UNCLASSIFIED

▲ **Calif., Avalon**—HARBOR IMPRVS.—City, City Hall, harbor imprvs. at Avalon Bay, 300 ft. breakwater from Casino Point, seaward and addnl. moorings for small boats. $1,500,000. Koebig & Koebig, 3242 W. 8th St., Los Angeles, consult. engrs.

▲ **Fla., Melbourne**—GAS LINES—Brevard County Gas Dist., natural gas lines, $4,000,000. John E. Gatzen, Harry Hendon & Assocs., Inc., 925 Sligh Blvd., Orlando, consult. engrs.

▲ **Ore., Portland**—DOCKING FACILITIES—Port of Portland, 3070 S. Front St., docking facilities, incl. trackage, harbor extension, sewage, water lines and utilities, Swan Island, $1,800,000.

▲ **Pa., Pottstown**—SERVICE BLDG.—American Telephone & Telegraph Co., 400 Hamilton Ave., White Plains, N. Y., plans by Alfred Easton Poor, 4000 Park Ave., New York, underground service bldg. and repeater station. $1,000,000. Jaros Baum & Bolles, 730 3 Ave., New York, N. Y., consult. engrs. CD 10/12.

NEW from General Electric . . .

RAIL LIGHTING

For greater beauty, safety, and efficiency on bridges, overpasses, elevated highways and highway ramps

A fluorescent luminaire combining lighting fixture, bridge rail, and wiring channel all within the rail itself is announced by General Electric. The unit is especially designed for use on applications where mounting and installation pose a problem.

Working with Michael Flynn Manufacturing Company, fabricators of the aluminum rail, G-E engineers developed this unique 12-foot unit, which houses two 42-inch lamps. Built into the rail are all components of the fixture—reflector, socket, lamp, shatter-resistant acrylic window, ballast and wiring channel. The top section of the rail opens to allow easy access to the luminaire and ballast.

These are the benefits with this new concept in lighting:

- Big savings on installation and wiring—simply string out wire, open rail cover, and lay wire in channel.
- Uniformity of light along the roadway.
- Elimination of glare.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

December 14 Connecticut December 18 Vermont

BUILDINGS—LB & CA

▲ **L. & R. Constr. Co. of Medford, Inc.**, 84 Main St., North Reading, Mass., CA **$1,143,341**, est. $1,000,000; JUNIOR-SENIOR HIGH SCHOOL, Pound St., MEDFIELD, MASS. Town, Supt. Schools, High School, Dale St., Medfield, Mass. Bids Nov. 12. CD 11/18, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 18 Pennsylvania

STREETS AND ROADS

December 18 Pennsylvania

▲ **NEW YORK**—BA 12/16—Triborough Bridge & Tunnel Auth., Administration Bldg., Randall's Island, New York, Zone 35, Narrows Bridge, Contr. No. NB-1B, Brooklyn Tower Piers, Narrows Bridge, Contr. No. NB-1S, Staten Island Tower Pier. Extended date. Plans deposit $25. CD 10/29.

▲† **Md., Andrews Air Force Base**—INSTRUMENT LANDING SYS.—BA 12/22—U.S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., instrument landing sys., ENG-49-080-60-28 (31). Whitman, Requardt & Assoc., 1304 St. Paul St., Baltimore, Zone 2, archts. CD 6/2.

BUILDINGS—BA

▲ **N. Y., Tarrytown**—INN—BA Early In February—Milton Motels Corp., 401 7th Ave., New York, Zone 1, 1,200-room inn on 10 acre tract at Broadway and New York State Thruway Exit No. 9. $2,000,000. Bids taken in September rejected. William B. Tabler, 401 Seventh Ave., New York 1, N. Y., archt. (Correction—status). CD 10/7, under CA.

HEAVY CONSTRUCTION—LB & CA

▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg, Pa.—**Frank Mashuda Co., Inc., Mashuda Constr. Co., & Frank Mashuda Co.**, Evans City, Pa., CA **$1,815,532**, divided hy. 4.62 mi. rein. c. conc. 24' wide between Kittanning and Worthington, U.S. Rte. 422, Federal Aid primary and State Highway and Bridge Auth., Armstrong Co.

Pa.—**Latrobe Road Constr. Co.**, Latrobe, Pa., CA **$2,441,349**, c. conc. 2 lanes 20 ft. wide 6 bridges, 5.84 mi. U.S. Rte. 119 south of Indiana, Federal Aid Primary and State Highway and Bridge Auth., Indiana Co. Bids Oct. 29. CD 11/4; under LB.

▲† **Arthur Venneri**, 1816 Jefferson Pl. N.W., Wash., D. C., CA **$3,304,119**, Hangar Maintenance Organization CRT-2 and SAM-2, ENG-49-090-60-8(8), ANDREWS AIR FORCE BASE, MD. U. S. Eng., 1st and Douglas Sts. N.W., Wash. 25, D. C. Bids Nov. 3. CD 11/9; under LB.

BUILDINGS—LB & CA

▲ **Bd. Educ. of City of New York, Bureau Constr.**, 42-15 Crescent St., Long Island City 1, N. Y., rejected bids Oct. 15, PUBLIC SCHOOL 145, Amsterdam Ave. between West 104th and 105th St., Manhattan Boro; PUBLIC SCHOOL 1, East 152nd St. west of Courtlandt Ave., Bronx Boro; PUBLIC SCHOOL 203, Springfield Blvd. between 51st and 56th Aves., Queens Boro, Bayside, NEW YORK, N. Y. Jobs awarded individually. LB **$6,355,000**. CD 10/19; under LB.

▲ **Kleban Realty & Constr. Co.**, 430 Park Ave., New York 22, N. Y., CA Est. **$15,000,000**, 20 story APARTMENT, 3rd Ave., East 56th and East 57th Sts., NEW YORK, N. Y. Two Hundred East, c/o contractor, Emery Roth & Sons, 400 Park Ave., New York, N. Y., archts.; MacArthur Constr. Corp., 101 Park Ave., New York, N. Y., engrs.

▲ **Bd. Educ.**, 221 Cross St., Harrison, N. J., cancelled bids to have been opened Nov. 1, HIGH SCHOOL, HARRISON, N. J. **$2,000,000**. Will be received in January. CD 9/29.

▲ **L. J. Builders, Inc.**, 135 Crescent Ave., Waldwick, N. J., Owner Builds, **$4,000,000**, 160 HOUSES, Tamerack, Mary Lane and Lockwood Dr., WALDWICK, N. J.

▲ **Paul Tishman Co., Inc.**, 21 East 70 St., New York, N. Y., LB **$7,887,789**, general construction Haverford MENTAL HEALTH CENTER, Haverford Twp., Delaware Co., FOXCROFT, PA. General State Auth., 18th and Herr Sts., Harrisburg, Pa. Bids Dec. 2. CD 11/12;

Williard, Inc., Germantown and Sedgley Aves., Phila., Pa., LB **$2,968,000**, mechanical construction, Haverford Mental Health Center (Foxcroft, Pa.);

Miele Plumbing, Heating & Constr. Co., 66 St. and Girard Ave., Phila., Pa., LB **$808,880**, plumbing, Haverford Mental Health Center (Foxcroft, Pa.);

Rors Electric Constr. Co., Inc., 106 Fairmount Ave., Phila., Pa., LB **$1,447,000**, electrical works, Haverford Mental Health Center (Foxcroft, Pa.);

Daniel J. Keating Co., 31917 Baring St., Phila., Pa., LB **$467,000**, utilities, Haverford Mental Health Center (Foxcroft, Pa.).

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 15 West Virginia

STREETS AND ROADS

December 15 West Virginia

▲† **Florida**—BA 12/30—U. S. Eng., 575 Riverside Ave., Jacksonville, Levee 35B Central and Southern Florida Flood Control Project, CIVENG-08-123-60-24B. CD 11/27.

BUILDINGS—BA

▲ **Ky., Louisville**—HOSPITAL—BA 12/30—Jewish Hospital, 217 E. Chestnut St., 2 story hospital addn. $2,000,000. Joseph & Joseph, Speed Bldg., Louisville, Zone 2, archts. E. R. Ronald & Assoc., 554 S. 3rd St., Zone 2, engrs. CD 10/8.

▲ **Va., Lynchburg**—BANK—BA 1/21—First National Trust & Savings Bank, 811 Main St., (selected list of bidders), 3 story, bsmnt., granite base, limestone bank, parking deck, underground parking. $2,000,000. Clark, Nexsen & Owen, First Colony Life Bldg., archts.

HEAVY CONSTRUCTION—LB & CA

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

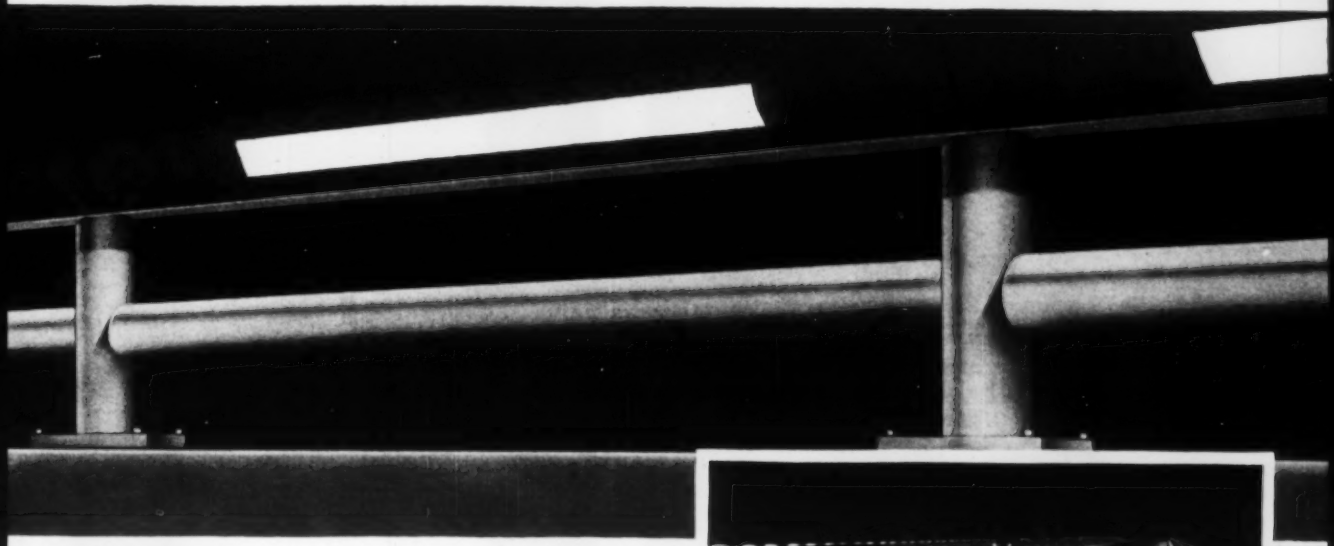
Terry & Wright, Inc., 4510 Poplar Level Rd., P. O. Box 121, Louisville, Ky., CA **$2,858,443**, grade, drain, 9.302 mi. Madisonville-Hopkinsville, F-FG 526 (19) SP 54-310 SP 54-20, Hopkins Co. Bids Nov. 24, awarded Nov. 27. CD 12/2, under LB.

BUILDINGS—LB & CA

▲ **Monroe Associates**, 725 15 St. N. W., Wash., D. C., Owner Builds, **$2,250,000**, 225 unit APARTMENT PROJECT, South Scott St. and Columbia Pike, ARLINGTON, VA. Corning & Moore, 1302 18 St. N. W., Wash., D. C., archts.

▲ **John W. Daniel & Co., Inc.**, Rte. 29, Danville, Va., CA Est. **$3,000,000**, SHOPPING CENTER, DANVILLE, VA. John W. Daniel, 3232 Riverside Dr., Danville, Va. Bids Nov. 20. CD 11/25.

(Continued on page 70)



All light from units is directed on the roadway at low level—roadway limits and median strips are clearly defined.

- Greater visibility in fog, rain or snow.
- Easy "ground-level" relamping and servicing.
- Added beauty—units blend in with rail.

More information on this new unit and its exciting approach to roadway lighting is available from your G-E Apparatus Sales Engineer or Section 450-11, General Electric Co., Schenectady 5, N. Y.

GENERAL ELECTRIC

275 tons per hour-

to the strictest specifications from this "SERIES A" Batch Type Asphalt Plant

• This recently installed H&B "Series A" batch type asphalt plant has been producing to and in excess of its rated capacity of 250-275 tons per hour.

George F. Patterson, of Trimount Bituminous Products Co., Everett, Mass., owner of the plant, says: "Our experience with the T-80 plant definitely substantiates your manufacturer's rating of 250-275 tons per hour. I would add that at peak hours on certain mixes we have exceeded your rating by 15%-20%."

Basically, "Series A" plants are much the same as our Type "T" plants which have established such outstanding production records since their introduction several years ago. To the proven design of the sturdy Type "T" plant, H&B engineers have adapted many improvements and refinements—a few of which are listed and briefly described on the opposite page. "Series A" plants are available in six sizes, with batch capacities from 2,000 to 8,000 lbs. For complete information see your H & B distributor or write direct.

Dryer Drum 40′ long 112″ diameter

This view shows the dryer drum in construction, with the trunnion rings being applied. This unit is typical of the massive construction of this plant. To our knowledge, this is the only full and completely balanced 8,000 lb. plant in existence.

HETHERINGTON & BERNER INC., INDIANAPOLIS 7, INDIANA

***Export Dept.*, 205 W. Wacker Drive, Chicago 6, Ill., Cable Address "PANMAKINA"**

plus

A few of the many IMPROVEMENTS and REFINEMENTS – that make this increased production possible – even to the strictest specifications

NEW . . . *Screens*—New model Deister Screens, 3½ decks, balanced design, all sizing decks full area.

NEW . . . *Larger Hot Elevator*—Increased capacity, with new type chains and buckets.

NEW . . . *Larger Dryers*—All models offer larger dryers, with lifter flight modifications to allow better air flow and improve aggregate distribution.

NEW . . . *Oil Burners*—Maxon—Low Pressure.

NEW . . . *Dryer Feed Hood*—Sealed to eliminate air leaks. Also internal chute to return dust to drum and eliminate accumulation in hood.

NEW . . . *Fugitive Dust System*—Ducts built into elevator casing with separate exhauster and individual controls on all ducts.

NEW . . . *Tower Stability*—Less screen overhang means less vibration. On the large screens, a dynamic braking system eliminates tower sway when screen stops.

NEW . . . *Relocated Dust Elevator*—On same side as hot elevator, so return from dust collector can be put into hot or dust elevator as desired, without use of conveyor.

NEW . . . *Electric Control Center*—Integral part of tower structure, with permanent wiring for mixer, air compressor, cycle control on mixer.

NEW . . . *Optional Reject Bin*—For oversize from screen, with chute mounted on aggregate bin. Discharge to back of tower at driveway.

A wholly owned subsidiary of AMERICAN HOIST & DERRICK CO.

(Continued from page 67)

▲ **W. H. Weaver Constr. Co.**, 214 W. Gaston St., Greensboro, N. C., Own Forces, **$2,500,000**, 175,000 sq. ft. SHOPPING CENTER, WINSTON-SALEM, N. C. Stinson, Arey & Hall, 639A W. 5th St., Winston-Salem, N. C., archts.

▲ **Roscoe-Ajax Constr. Co.**, 1107 19 St. N.W., Wash., D. C., LB **$5,439,000**, CRIMINAL COURTS BLDG., MIAMI, FLA. Bd. Comrs. Dade Co., Courthouse, Miami, Fla. Bids Nov. 24. CD 10/15.

▲ **Farnsworth & Chambers**, P. O. Box 74, Houston, Tex., LB Approx. **$3,000,000**, 300,000 sq. ft. MANUFACTURING PLANT addns., etc., NATCHEZ, MISS. Armstrong Tire & Rubber Co., 475 Elm St., West Haven, Conn. Bids Nov. 19. CD 11/16.

▲ **Foster & Creighton Co.**, 724 1st American National Bank, Nashville 3, Tenn., CA **$2,254,000**, 7 story, 65,000 sq. ft. DENTAL SCHOOL University of Kentucky, LEXINGTON, KY. Commonwealth of Ky., Div. Purchases, Frankfort, Ky. Bids Nov. 17. CD 11/19, under LB.

MIDDLE WEST

BUILDINGS—BA

▲ **Ill., Chicago** — APARTMENT — BA 12/15 — Chicago Housing Authority, 608 S. Dearborn, Zone 15, 13 story apartment, corner Jackson and Campbell Ave. $2,258,000. Nichol & Nichol, 23 E. Jackson Blvd., Zone 4, archts. CD 10/16.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—Dpt. Hys., State Depts. Bldgs., Columbus, Zone 15. Bids opened 11/24.

O —**V. N. Holderman & Sons Co.**, 890 Oakland Park Ave., Columbus, O., LB **$1,318,366**, est. $1,609,200, (15 bidders), Type T-71 and structure 5.354 mi. USR 36-22. 94, F-FG 1118(2) Proj. 526, Coshocton Co.; LB **$2,243,775**, est. $2,591,400, (15 bidders), Type T-71 6.399 mi. USR 42-0.00, 20.93 Parts Nos. 1 and 2, Proj. 536, Greene and Warren Counties.

O —**Claude A. Janes, Inc.**, P. O. Box 127, Chesterhill, O., LB **$1,706,347**, est. $1,930,500, (7 bidders), Type T-35 and structures 10.168 mi. USR 52-0.00, 21.00 Villages of Aberdeen and Manchester, Proj. 534, Adams and Brown Counties. CD 11/2.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 15 Iowa — January 20, February 17 Montana

STREETS AND ROADS

December 15 Iowa — January 20, February 17 Montana

HEAVY CONSTRUCTION—LB & CA

▲† **Martin K. Eby**, 610 N. Main St., Wichita, Kan., LB **$22,143,981**, est. $22,336,630, (5 bidders), Atlas Intercontinental ballistic missile at following sites: Chugwater and La Grange, Wyo., Pine Bluff and Kimball, Neb., and Hereford, Briggsdale, Nunn, Greeley, Fort Collins, Colo., Francis E. Warren Air Force Base, Inv. No. ENG-25-066-60-13, CHEYENNE, WYO. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. CD 11/30, under LB.

FAR WEST

BUILDINGS—SLC

▲ **Calif., Fremont**—PLANT—Trailmobile, Inc., 901 Gilman, Berkeley, soon lets contract 1 story, 230,000 sq. ft., brick, concrete blocks trailer mfg. plant, **$2,500,000**. Plans deposit $75. Geo. W. Schatz & Assoc., 309 Ludlow Ave., Cincinnati, O., archts. CD 10/27.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

E. L. Yeager Co., E. L. Yeager Constr. Co., and Lowe & Watson, P.O. Box 87, Riverside, Calif., CA **$5,158,086**, grade, surf. 9.7 mi. four-lane freeway by-passing Barstow for traffic US Hys. 66, 91, 66 and 91-466, 14 structures, VIII-SBd-31 58-F Bsw, G, D, E, San Bernardino Co. Bids Nov. 19. CD 11/24, under LB.

BUILDINGS—LB & CA

▲ **Hercules Powder Co.**, Delaware Trust Bldg., Wilmington, Del., Own Forces, CA UREA-FORMALDEHYDE PRODUCTS PLANT, HERCULES, CALIF.

▲ **L. E. Dixon Co.**, 409 S. California St., San Gabriel, Calif., and **M. H. Golden Constr. Co.**, 3485 Noell St., San Diego, Calif. (joint venture), CA **$7,500,000**, 4 story DEPARTMENT STORE, 3 story Montgomery Ward STORE, 50 SHOPS, SAN DIEGO, CALIF. May Department Stores, 611 Olive St., St. Louis, Mo. Frank C. Hope & Assocs., 1447 6th St., San Diego, Calif., and Albert Martin, 210 W. 7th St., Los Angeles, Calif., archts. Awarded Nov. 30. CD 4/4/58.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

January 7, 20 British Columbia

STREETS AND ROADS

January 6 Ontario

HEAVY CONSTRUCTION—LB & CA

▲ **York Steel Constr. Ltd.**, 75 Ingram Dr., Toronto, Ont., LB **$3,880,000**, structural steelwork for Aeroquay No. 1, Air Terminal Bldg. at International Airport, TORONTO, ONT. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Nov. 19. CD 10/30.

BUILDINGS—LB & CA

▲ **Brassard & Michaud, Inc.**, Lac Megantic, Que., CA Est. **$2,000,000**, 100-bed HOSPITAL, LAC MEGANTIC, QUE. Provincial Dpt. Health, Parliament Bldgs., Quebec City, Que. CD 3/16.

U. S. POSSESSIONS

HEAVY CONSTRUCTION—BA

▲† **Panama Canal Zone**—BA 2/15—Panama Canal Co., Canal Zone, Balboa Heights, wid'n. Empire Reach, Panama Canal, $11,660,000. CD 7/23.

HEAVY CONSTRUCTION—LB & CA

▲† **CANAL ZONE**—Panama Canal Co., Balboa Heights, Bids opened 12/2.

U. S. Steel Export Co., 100 Church St., New York, N. Y., LB **$9,861,000** (9 bidders), using U. S. Steel superstructure of Balboa Bridge over Panama Canal. CD 8/21;

John F. Beasley Constr. Co., Mercantile Bank Bldg., Dallas, Tex., LB **$9,119,000** (evaluation factor increases LB to $9,839,000) using Foreign (French) steel for superstructure of Balboa Bridge over Panama Canal (Canal Zone).

FOREIGN

HEAVY CONSTRUCTION—LB & CA

▲ **Reed & Mallick, Ltd.**, Whitewell, England, CA Est. **$9,370,000**, 4,560 ft. bridge over Derwent River, Hobart, Tasmania, AUSTRALIA. Govt. of Australia, Melbourne, Australia. Clitheroe, Lancashire & Braithwaite & Co., Engineers, Ltd., Dorland House, Regent St., London S.W.1., England, engrs.

BUILDINGS—LB & CA

▲ **Verebidge Machinefabrieken** (Werkspoor, N. V., Oostenburgermidden Str. 62, Amsterdam and Royal Machineworks Stork Co., Hengelo, The Netherlands) CA. SUGAR FACTORY and REFINERY, KHUZESTAN, IRAN. Govt. of Iran, Tehran, Iran.

▲ **Atlas Co. Ltd.**, Copenhagen, Denmark, and **Christiani & Nielson (Thai.) Ltd.**, Bangkok, Thailand, CA Est. **$2,000,000**, ABATTOIR-COLD STORAGE MEAT FACTORY, BANGKOK, THAILAND. Livestock Trading Corp., c/o Municipality of Bangkok, Bangkok, Thailand.

POSEY PILINGS HELP PROTECT

TAPPAN ZEE BRIDGE PIERS

Posey Pilings . . . 52′ long, 30″ O.D., ½″ wall . . . have been driven deep into the bed of the Hudson River to protect the piers of the New York Thruway Tappan Zee Bridge from the destructive pounding of floating ice and debris.

Posey is equipped to meet your requirements in pipe and piling from 20″ diameter and larger. Budget and delivery agreements rigidly observed. Write for prices and specifications without obligation.

Fabricated in accordance with ASTM Specifications A-252, Grade 2

40′ long, 30″ O.D., ½″ wall . . . Posey Piling below was fabricated for off-shore oil well drilling platforms in the Gulf of Mexico.

POSEY IRON WORKS, INC.

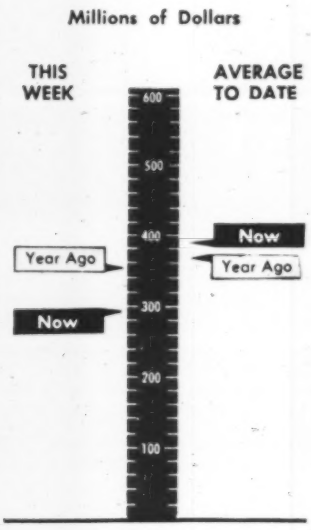
LANCASTER, PENNSYLVANIA

NEW YORK OFFICE: GRAYBAR BUILDING

DIVISIONS: Steel Plate Fabrication ● Brick Machinery and Mixers
Iroquois Asphalt Plant ● Gray Iron and Steel Foundry
Industrial Heating ● Tunnel and Mine Equipment

Construction Scoreboard

CONTRACTS ...



AMOUNT OF CONTRACTS LET

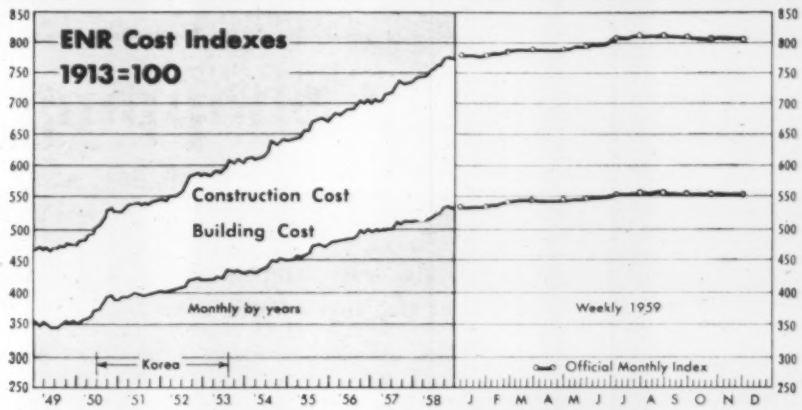
	This Week	Cum. 50 wks 1959	Chge '58-'59 %
	millions		
All Heavy Constr.	$293.7	$19,492.1	+ 5
By Ownership			
PRIVATE	154.8	9,907.0	+32
PUBLIC	138.9	9,585.1	−13
State & Municipal	98.7	6,956.2	−16
Federal	40.2	2,628.9	− 4
By Type of Work			
PUBLIC			
Waterworks	3.6	364.0	+23
Sewerage	8.7	624.4	+ 6
Bridges*	3.3	667.6	− 3
Highways	33.2	2,767.8	−23
Earthworks, Dams & Waterways	6.3	858.3	−14
Buildings:			
Excl. Housing	40.9	2,457.5	− 3
Housing	3.8	561.8	−46
Unclassified	39.0	1,294.9	− 2
PRIVATE			
Buildings:			
Mass Housing	90.5	4,503.1	+25
Commercial	35.4	2,043.3	+16
Industrial	23.0	2,875.7	+69
Unclassified	6.0	473.7	+18

* Includes private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of Dec. 3	Cum. 49 wks 1959	Chge '58-'59 %
	millions		
Corporate Securities	$95.5	$4,015.8	−18
State & Municipal:			
All Except Housing	82.4	5,549.8	− 5
Housing	...	107.5	− 9
Federal Loans	...	134.0	−30
Federal Aid	...	3,343.4	+29
Total Nonfederal	$177.9	$13,150.5	− 4
Federal Appropriations:			
Projects in U. S.	...	$3,564.1	−16
Outside U. S.	...	22.4	−51
Total New Capital	$177.9	$16,737.0	− 7



CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Dec. 3 1959	% Change from Oct. 29 1959	% Change from Nov. 27 1958
Construction Cost	808.63	−0.1	+4.5
Building Cost	552.67	−0.3	+3.4

*Official Monthly Index for December, 1959.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
To convert above indexes to 1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

WAGE RATES, 20-cities' average

	Dec. 1959	% Change from Nov. 1959	% Change from Dec. 1958
Common	$2.627	+0.1	+5.8
Skilled (average 3 trades)	3.942	+0.2R	+4.7
Bricklayers	4.172	+0.5R	+4.0
Structural Ironworkers	3.977	+0.1R	+5.0
Carpenters	3.678	+0.2R	+5.3
Equipment operators (average three types)	3.560	+0.2	+5.4

MATERIAL PRICES, 20-cities' average

Structural Steel (average 3 mills), per cwt	5.50	0	0
Lumber, 2x4 Fir, per M fbm	120.57	−1.8	+4.8
Lumber, 2x4 Pine, per M fbm	108.07	−0.8	+5.5
Cement, bulk, per bbl	3.94	0	−0.5
Sand, per ton	2.472	+0.2	−3.2
Ready-mixed concrete, per cu yd	14.137	+0.2	+2.2
Gypsum sheathing, ½"x2'x8', per Msf*	63.290	−0.3	+0.7
Fiber board sheathing, ½" sq. ed., per Msf*	73.512	0	+2.7
Mineral wool insulation, 3' batts, per Msf*	68.38	0	−3.0
Crushed stone, 1½", per ton, CL	2.700	+2.2	−5.5
Concrete blocks, sand/gravel, 8"x8"x16", each*	.2495	−0.2	+9.0
	1959	1959	1958
Brick, common per M	39.618	0	+5.6
Lime, hydrated finishing, per ton, CL	39.301	−0.03	+5.4
Structural clay tile, 3x12x12", per M, 2,000 up*	185.95	−0.5	+3.8
Vitrified clay sewer pipe, std 12", per ft	1.478	+8.1R	+11.4
Concrete sewer pipe, 12", per ft	1.354	+1.1	+3.4

* Delivered, trucklots •R November figures revised

ENR INDEX REVIEW

	Construction Cost 1913=100	Construction Cost 1949=100	Building Cost 1913=100	Building Cost 1949=100	Volume 1913=100	Volume 1949=100
Nov	774.12	162.28	534.96	152.07	384	111
Dec	773.81	162.22	534.79	152.02	466	435
1958 Average	**759.16**	**159.15**	**524.68**	**149.15**	**531**	**153**
1959						
Jan	778.28	163.15	536.23	152.43	460	133
Feb	778.75	163.25	537.25	152.72	472	136
Mar	781.35	163.80	540.32	153.59	586	169
Apr	784.41	164.44	542.93	154.33	532	154
May	790.37	165.69	544.44	154.76	700	202
Jun	795.16	166.69	548.35	155.87	650	188
July	806.69	169.11	551.74	156.84	671	194
Aug	811.15	170.04	554.31	157.60	509	147
Sept	812.56	170.33	555.88	158.01	545	158
Oct	811.40	170.09	555.40	157.88	415	120
Nov	809.78	169.75	554.19	157.53	509	147
Dec	808.63	169.52	552.67	157.10	....	....

Cities Plan a Shopping List

- **They're ready to present federal officials with new requests for financial help.**
- **Grants for railroads, city streets and housing are among items at the top of the list.**

The nation's cities last week served notice on the federal government that they need help and aren't shy about asking for it. Administration officials and Congressmen can expect to hear requests for grants to cover a wide range of municipal projects. Among them:

- Grants to provide local transportation facilities.
- Grants for the construction of city streets.
- Direct federal loans for middle-income housing.

The sample list is the product of the American Municipal Association, which met last week in Denver. Its members are top officials of 13,000 municipalities.

In addition to calling for "rational tax policies for the railroads," at all governmental levels, AMA asked for federal loans to provide new railroad plant and commuter equipment to improve intracity passenger transportation. The loans should be made on a "long term and low interest rate basis."

The group also recommended that the federal government consider grants to communities or public bodies having a "sound plan for permanent improvement of commuter and intracity transportation." That program would be modeled on the present urban renewal operation.

A preliminary draft of the proposed legislation is being prepared this week by attorneys of the Pennsylvania Railroad and the City of Philadelphia.

Members resolved to battle against any attempts to cut back or eliminate federal aid for the urban sections of the Interstate System.

Moreover, the group favors legislation that would establish a federal-aid urban system of arterial city streets. That program would be in addition to the federal-aid primary and Interstate systems. "Cities want the same consideration as county and state governments on the construction of secondary roads," highway committee chairman Glenn C. Richards said.

The association called for restoration of the $10,000 public housing units originally authorized in the 1949 Housing Act.

To this would be added a new program to fill the "housing needs of families in the middle-income range." This would be accomplished through a "direct government loan system, which should be initiated by Congress without further delay."

Expansion of existing programs for water pollution control, hospital construction and airport construction is also on the list.

Changes in the 1956 Water Pollution Control Act that the association will ask for include:

- Provide funds for a program of research in waste treatment methods necessary for reuse of water resources passing from city to city.
- Increase the individual project grants to cover at least one-third of the cost of the project and eliminate the maximum amount for each local project. The present allowance is 30% of project cost or a maximum of $250,000.
- Boost the total annual authorization from the present $50 million to $100 million.
- Authorize reallotment of unused grants to states where projects are delayed for want of financing.
- Permit communities to join together to construct treatment plants for common use.

For airports, the association wants a $100-million-a-year in grant funds for each of five years and an additional $75 million for discretionary use.

The group will drive for amending the Hill-Burton Hospital Act so as to "realistically adjust the present disproportionate high priority allotted rural areas."

Civil defense was also on the agenda. The association recommended that the federal government develop a nationwide program of shelter protection.

More Capital for Equipment?

Recent economic and political developments here and abroad are forcing government policy makers to take a hard new look at outmoded U.S. depreciation regulations.

Liberalizing depreciation tax deductions still is an uncomfortable prospect for many Administration and Congressional leaders in these days of closely figured budgets. Easing depreciation charges could produce a temporary loss of revenues that might throw the budget out of kilter, unless revenues are found elsewhere.

But any changes would provide both direct and indirect benefits to the construction industry. They would provide more funds for new construction equipment, and would encourage capital outlays by industry, which would mean more construction contracts.

Officials are being pushed to face up to the need of eventually liberalizing depreciation allowances. The alternative possibly could be economic losses to West European countries, Japan and Russia, if their economies expand faster than ours.

The whole issue of depreciation was spotlighted by an unexpected twist of circumstances before the House Ways and Means Committee last week. The committee has been holding a lengthy series of hearings aimed at tightening up the U.S. tax structure.

Committee Chairman Wilbur Mills (D., Ark.) had exercised tight control in previous hearings by presenting at least a rough balance of views from experts in various tax fields.

But most panelists testifying on depreciation were of one mind—they called for more, not fewer, exemptions.

The experts kept returning to this central theme: There is a critical need to liberalize depreciation policies to (1) provide adequate capital for modernizing existing plants and equipment and (2) create a wide-scale expansion of new facilities.

It's now believed that the session may improve the climate in Washington for more serious consideration of modernizing depreciation rules.

One witness proposed that depreciation schedules be tied to indexes of building and equipment costs. William A. Patten, University of Michigan professor, said that inflation causes present depreciate systems to confiscate capital. Reason: They allow only actual cost instead of replacement cost.

Capital Outlays Heading Higher

American businessmen are programming moderate increases in their capital spending on new plant construction and equipment replacements through the first quarter of next year.

Manufacturers are sparking the drive toward higher spending. Planned capital outlays by most other industries are holding steady or declining slightly.

Total spending, on a seasonally adjusted annual rate basis, is estimated at $34.4 billion in the first three months of next year, according to the regular survey published this week by the Commerce Department and the Securities and Exchange Commission. This would be an increase of $450 million estimated for the last three months of 1959.

The SEC-Commerce survey detected some slowdown in the rate of planned capital spending during the last half of 1959, due mainly to the steel strike. Carryover effects resulting from the steel strike are expected to further slow the advance during the first quarter of next year.

However, government economists expect that total capital outlays for 1960 as a whole will continue to rise—and may top the record $37 billion spent in the 1957 capital goods boom.

This week's SEC-Commerce survey differs from the recent McGraw-Hill survey by reporting only on first quarter expenditures. The McGraw-Hill tabulation was for 1960 as a whole, and showed total estimated outlays of $37.3 billion, up 10% from this year (ENR Nov. 12, p. 24).

The government survey shows a sharp quarter-to-quarter gain in capital outlay planned by manufacturing industries. Primary iron and steel companies are estimating an annual rate rise in first quarter 1960 of $430 million. That would bring the total for manufacturing to $1.5 billion.

In actual estimated dollar outlays for next quarter, U. S. businesses are programming $3.05 billion for capital goods.

First quarter estimated spending by primary iron and steel companies comes to $310 million.

Other manufacturing industries forecasting sizable gains are auto manufacturers and chemicals firms. Stone, clay and glass companies are showing a sharp rise following level expenditures for all of this year.

Spending by public utilities for the quarter are estimated at $1.17 billion. Railroads and nonrail transport groups are planning to make some small cutbacks.

First Quarter Capital Spending Outlook*

(BILLIONS OF DOLLARS)†

Industries	1959 Jan.-Mar.	1959 Apr.-June	1959 July-Sept.	1959 Oct.-Dec.	1960 Jan.-Mar.
Manufacturing	$11.20	$11.80	$12.25	$12.82	$13.84
DURABLE GOODS INDUSTRIES	5.26	5.74	5.83	6.13	6.97
Primary Iron and Steel	1.02	1.07	.90	1.08	1.51
Primary Nonferrous Metals	.32	.35	.28	.36	.37
Elec. Mach. and Equip.	.44	.49	.55	.51	.54
Machinery, Except Electrical	.79	.91	.95	1.04	1.00
Motor Vehicles, and Equipment	.56	.58	.68	.66	.84
Transportation Equipment	.38	.39	.41	.37	.46
NONDURABLE GOODS	5.94	6.06	6.42	6.69	6.87
Food and Beverages	.77	.83	.83	.88	.88
Textile-Mill Products	.32	.37	.45	.49	.53
Paper and Allied Products	.55	.61	.66	.67	.71
Chemicals and Allied Products	1.14	1.17	1.30	1.30	1.42
Petroleum and Coal	2.53	2.40	2.47	2.54	2.53
Mining	.95	.94	1.01	1.05	.95
Railroads	.63	1.00	1.28	.87	.84
Transportation, Other Than Rail	1.71	2.08	2.17	2.22	2.15
Public Utilities	5.80	5.82	5.58	5.81	5.59
Commercial and Other	10.33	10.87	11.06	11.18	11.03
Total	$30.62	$32.51	$33.35	$33.95	$34.40

* Securities and Exchange Commission—Department of Commerce.
† Seasonally adjusted at annual rates.

Equipment Firm Sets Up Prefabricated Building Unit

A construction machinery manufacturer is going into the prefabricated building business.

The entrant is J. I. Case Company of Racine, Wis. Its new subsidiary, Case Building Corp., will not be fully competing on the open market for about a year, however, because it will be busy supplying the structures to J. I. Case's dealers.

The new operation originated for the benefit of the company's machinery dealers, says Marc B. Rojtman, Case president. The company wanted to provide attractive but low-cost structures for the dealers. Company architects worked out the plans for the units.

The structures met the requirements of Case so well that the company decided to offer the units on the general market.

The prefabricated sections will be manufactured in units of 20 x 40 ft, 20 x 50 ft and 20 x 60 ft. By combining units, buildings can be of any size, for commercial or industrial use.

Case plans to operate the subsidiary primarily as a sales and engineering unit. About 95% of the materials will be bought from suppliers producing to Case specifications. Case will only manufacture the special equipment for joining the sections together.

The company eventually will supply the complete package, including hardware, windows, doors and wiring.

The buildings will be flat-roof, one-story structures of steel girder construction with exterior walls of aluminum or steel curtain.

Price was not announced.

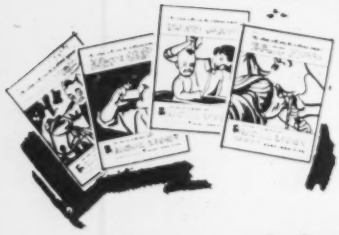
Business in Brief . . .

• **Seaway shipping increases**—Preliminary figures show that 17.4 million tons of cargo were carried through the St. Lawrence Seaway during the 1959 navigation season, to the end of October. That's 72% greater than carried by the old St. Lawrence canals in the corresponding period of 1958.

• **City fears seawall suits**—Along with physical protection from high seas, Norfolk, Va., wants legal protection from property owners in case the physical protection fails. The city will ask the next Virginia legislature for immunity from damage claims that might arise out of operating and maintaining a proposed seawall for downtown Norfolk.

NEW CAMPAIGN STARTS COMMITTEES ACROSS

For the first time, a nationally organized plan to develop local action to combat our growing water shortage has been devised by a supplier to the industry. The need for a campaign to stimulate such action was recognized by the Cast Iron Pipe Research Association. Here's how the first year of the campaign was planned—and the successful results it produced.

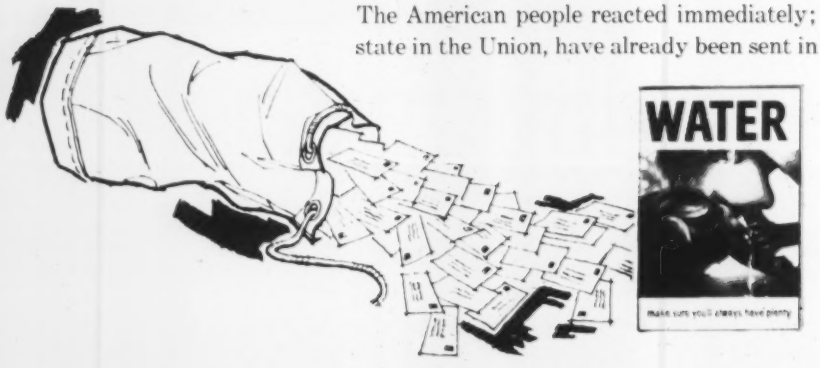
Frank ads warned of shortage

The theme of the ad campaign "What Will You Do Without Water?" was coupled with dramatic photographs of people using water in everyday situations.

Informative booklet told how <u>everyone</u> could help

Each ad offered the booklet "Water—Make Sure You'll Always Have Plenty," which outlined working plans for local action against water problems.

Response was heavy!

The American people reacted immediately; thousands of requests, from every state in the Union, have already been sent in for the booklet—but that's not all!



LOCAL WATER IMPROVEMENT THE COUNTRY!

Research shows people took action!

The average person who wrote in for the booklet did at least three things. For instance:

* He informed neighbors and friends of the problems, discussed solutions, and sought more information.
* He requested a starter kit from Cast Iron Pipe Research Association—to help spur more interest and plan new and better water facilities.
* He formed or joined a local water improvement committee in order to take direct and immediate action.

Here are just a few of the remarks received on the worth and completeness of the program.

From a housewife in Connecticut: *"Although I had no such intentions before, I'm going to do something about the suggestions given."*

From a teacher in the state of Washington: *"Last month I was elected as a trustee for the Local Water User's Corporation. We are now in the process of installing a new water reservoir; your program was a very helpful source of information."*

From a retired man in Florida: *"Our city is talking of putting in a new water supply system in order to tap river water. Your literature has been very useful."*

The American people are interested and willing to face the problem; they need only your guidance.

Now . . . A complete program for you!

A complete portfolio has been compiled for you—to help you stimulate action in your community . . . to help you answer some of your own local water problems. If you are now faced with a local water problem in which community relations will play an important part, write on your letterhead to the Cast Iron Pipe Research Association, 3440 Prudential Plaza, Chicago 1, Ill., Thos. F. Wolfe, Managing Director.

The Cast Iron Pipe Research Association is proud of the job it has done—and looks to the future with confidence that the American people can and will lick the water problem!

CAST IRON PIPE

THE MARK OF THE 100-YEAR PIPE

Contract Rally Sets Monthly Record

Construction contract awards staged a strong comeback in November to establish a new record for the month. Awards of $1.46 billion were 22% above October's weekly average and 31% above one year ago.

November's total brought volume for the first 11 months to $18.8 billion—6% above a year ago.

Leading the November upturn for the fourth consecutive month and for the year to date, was private work. Awards rose to $790 million to score a 24% increase over October and an 84% rise over November 1958. Private construction volume for the 11 months is $9.5 billion. That's 33% above 1958's same period.

Only one type of public works—mass housing—failed to grow in November compared with the October weekly rate. Total public works contracts climbed 19% above October to a total of $668 million. Highway work picked up momentum in November, helping to push state and municipal contract awards to $516 million, the first upturn in that sector since July. Although it was a 23% boost over October, the total fell 10% short of the volume of one year ago. Federal contracts totaled $152 million in November for a 9% increase over October and a 43% rise over November 1958.

Despite the gains, public construction volume during the first 11 months lags behind that of 1958. Total awards of $9.3 billion are down 13%. State and municipal awards of 6.8 billion are down 15%. Federal contracts of $2.5 billion are down 5%.

In the face of an extremely tight mortgage market, private mass housing continues to lead the construction market in volume. In November, housing contracts of $352 million rose 14% above the October rate, and 73% above one year ago.

For the first 11 months, private housing contracts total $4.3 billion. That's a 25% boost over 1958's same period. The total is also ahead of every full year except 1955 and 1956.

Industrial building's comeback is also spectacular. Tight money and the recent steel strike failed to throw this sector for a loss.

Industrial building awards in November soared 58% above October to $271 million. That's also close to three times the volume of $93.7 million of one year ago.

So far this year, contracts of $2.8 billion are 69% above industrial building volume registered in the first 11 months of 1958.

Cost Indexes Drop in December

Declining lumber prices pulled ENR's 20-Cities cost indexes down for the third consecutive month.

The Construction Cost Index for December is down to 808.6, a decline of .5% from the record 812.6 registered in September. The Building Cost Index is at 552, a .6% drop from the September high of 555.9.

Both figures are above December 1958. The Construction Cost Index is up 4.5% and the Building Cost Index is up 3.4%. Both indexes are based on 1913=100.

Despite the three declines, there is one factor that may contribute to higher construction and building costs in 1960—an increase in cement prices.

Increases announced so far average 10 cents per bbl for bulk and 15 cents per bbl for bagged. The increases will become effective January 1.

Boosts have been announced for the Southeast and Midwest areas. Increases in the Middle Atlantic States are also possible. In the Far West and Northeast, however, cement prices probably will remain stable.

Engineering Construction Contracts for November

Four Weeks—Thousands of Dollars (000 Omitted)

	November, 1959								Eleven Months			
	New England	Middle Atlantic	South	Mid-West	Mississippi to Rockies	Far West	Total Continental U. S.	% Change Nov. '58 to '59	Continental U. S. Cumulative 1959	1958	% Change '58 to '59	Canada Nov. 1959
Public Works, Total	**28,738**	**116,306**	**177,818**	**67,549**	**137,789**	**139,744**	**667,944**	**− 2**	**9,296,191**	**10,644,910**	**−13**	**49,444**
Waterworks	762	1,135	3,173	2,840	9,161	6,032	**23,103**	+38	**356,761**	284,109	+26	728
Sewerage	621	11,803	7,362	12,480	8,750	14,696	**55,712**	+36	**606,402**	562,710	+ 8	7,266
Bridges		13,510	4,798	5,705	10,594	5,497	**40,104**	−12	**644,493**	654,742	− 2	7,171
Earthwork, waterways	8,591	1,744	9,666	1,195	30,160	14,202	**65,558**	+24	**823,282**	985,754	−17	3,340
Streets and roads	8,875	36,945	74,043	26,157	29,736	18,976	**194,732**	−34	**2,700,033**	3,423,215	−21	5,926
Buildings: Residential	169	13,824	3,139		4,157	5,589	**27,178**	+37	**556,262**	1,009,686	−45	6,263
Other	6,169	27,957	63,601	15,578	37,222	36,003	**186,530**	+15	**2,391,122**	2,439,986	− 2	14,578
Unclassified	3,251	9,388	12,036	3,594	8,009	38,749	**75,027**	+45	**1,217,836**	1,284,708	− 5	4,172
State & Municipal	17,691	108,953	116,571	63,315	92,730	116,762	**516,025**	−10	**6,778,198**	7,970,987	−15	36,847
Federal	11,044	7,353	61,247	4,234	45,059	22,982	**151,919**	+43	**2,517,993**	2,673,923	− 6	12,597
Private, Total	**57,212**	**201,381**	**112,063**	**189,040**	**138,060**	**92,336**	**790,092**	**+84**	**9,518,758**	**7,167,884**	**+33**	**45,761**
Bridges			250				**250**	+67	**11,173**	10,146	+10	
Buildings: Industrial	6,024	44,083	50,515	115,790	29,008	25,614	**271,034**	+189	**2,761,603**	1,630,216	+69	4,414
Mass housing	28,862	124,847	40,137	53,151	65,232	39,790	**352,019**	+73	**4,301,437**	3,449,705	+25	7,705
Commercial	22,198	32,051	17,357	16,230	32,612	25,640	**146,088**	+28	**1,985,223**	1,695,922	+17	31,516
Unclassified	128	400	3,804	3,869	11,208	1,292	**20,701**	+ 6	**459,322**	381,895	+20	2,126
Total Nov. 1959—4 weeks	**89,950**	**317,687**	**289,881**	**256,589**	**275,849**	**232,080**	**1,458,036***	**+31**	.....	.....	.....	**95,205**
Total Oct. 1959—5 weeks	127,311	281,469	333,240	230,673	356,501	161,527	**1,493,721***		.....	.....	.....	123,157
Total Nov. 1958—4 weeks	76,486	202,876	186,386	170,201	312,796	163,063	**1,111,808***		.....	.....	.....	105,522
Eleven Months—1959	**1,200,775**	**4,035,355**	**3,411,690**	**3,335,486**	**3,833,699**	**2,997,944**	.....	.....	**18,814,949***		**+ 6**	**1,358,505**
Eleven Months—1958	1,197,582	4,438,823	2,488,757	3,218,572	3,641,207	2,827,853	.....	.....	.....	17,812,794*	.....	1,489,504
% Change '58 to '59	+0 3	−9	+37	+4	+5	+6	.....	.....	.....	.....	.....	−9

* Not including Alaska & Hawaii:
Add: Alaska Nov. '59: 2,300 Oct. '59: 4,044 11 Mos. '59: 85,805 11 Mos. '58: 88,271
Hawaii Nov. '59: 1,897 Oct. '59: 4,447 11 Mos. '59: 47,162 11 Mos. '58: 99,896

ENGINEERING NEWS-RECORD *reports continental U. S. construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $53,000; *other public works,* $88,000; *industrial buildings,* $110,000; *other buildings,* $400,000.

Can 'Reason' Cure Labor Troubles?

- **Industrial leaders hope so. They call for education of workers and the public, using reason and devotion to public interest.**
- **Management representatives at NAM Congress say current strife is a serious threat to individual freedom, economic growth.**

A massive management campaign of education and political action has begun to take shape as the next phase of the mounting conflict between labor and management.

Management men hope the program will bring about solutions to labor problems that will be conducive to economic progress and the well-being of all. That viewpoint was almost unanimous last week during discussions at the 64th Annual Congress of American Industry in New York City. It was sponsored by the National Association of Manufacturers.

NAM participation in a White House labor-management conference, proposed by labor, was not ruled out as a collateral approach to the current breakdown in collective bargaining.

But Charles R. Sligh, association executive vice president, said he saw little chance of any success in that direction until labor changes its basic thinking on a number of issues, including compulsory unionism, wasteful work practices, labor monopoly, industry-wide bargaining, and political action that "cannot be justified economically."

NAM's three major labor goals are more individual freedom, promotion of voluntarism and preservation of the free enterprise system.

The education and political action programs, which local employers were urged to set in motion, would be directed at individual employees, the general public and government officials at all levels. Prices, profits, wages, productivity and efficiency were the main labor-management issues generally mentioned as the ones on which "an informed public opinion" is essential. The feared alternative is legislation that is "unsound, oppressive and destructive."

"If the public is not adequately informed," said Sinclair Oil vice president Millard E. Stone, "it may nonetheless impose its will blindly and, I think, tragically for our freedoms." The place to start teaching the tenets of freedom and the economic facts of life, he said, is at the employee level. (And this, incidentally, is where steel management has now begun in an effort to minimize the chances of another steel strike and the government action that would surely follow.)

NAM is confident that the will of the people eventually prevails; it hopes the Landrum-Griffin labor reform law will encourage individual thought and action among union members.

Two congressmen identified with labor legislation—Graham A. Barden (D., N. C.) and Phil M. Landrum (D., Ga.)—attributed passage of the new labor law to an aroused public opinion. They suggested that the same strategy can be used to prevent further developments NAM considers detrimental to the public interest and inimical to economic growth and freedom.

The public is already aroused by four labor developments, said John Humphrey, chairman of NAM's Industrial Relations Committee. They are:

- The "relentless" upward trend of labor costs and "wage-push" inflation that oppresses economic activity.
- The growing influx of foreign-made goods that has resulted.
- Management's inability to fulfill its "managerial function" because of existing work rules.
- The "huge concentration of economic power" in labor unions.

The two items that attracted most

Labor in Brief . . .

• Mitchell hits both sides—Labor Secretary James P. Mitchell expressed his views last week on current efforts to solve the work rule problem: Management should not seek to change "by the bang of a single gavel working habits built up over many years." Labor should not be so obstinate in correcting "wasteful and archaic" practices.

• Teamsters limit aid—Teamsters President James Hoffa served notice last week that the teamsters will no longer honor picket lines for organizational or recognition purposes and will honor other picket lines only if indemnified by the striking union against damage suits. Reason given: Restrictions and liabilities imposed by the new labor law.

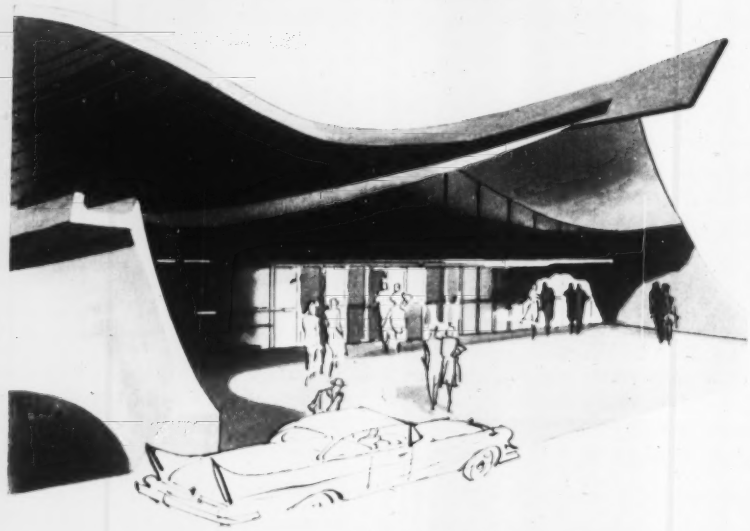
• Southern wages—Average wage scale of construction workers in the South increased 12.4 cents an hour over the past 12 months and now stands at $2.98, according to the southern regional director of the Bureau of Labor Statistics.

• Impressive performance—The Chicago construction industry, through its apprenticeship program, has graduated 499 building trades mechanics to full journeymanship during the past months. Included are 255 electricians, 113 carpenters, 60 sheet metal workers, 39 pipefitters and 32 roofers. Earlier this fall, 378 plumbing apprentices became journeymen plumbers.

• Temperance indicated—John Holcombe, new Commissioner of the Bureau of Labor-Management Reports, promises this Landrum-Griffin labor law approach: "I am going to make sure this law is administered right down the middle of the road with no undue restrictions."

• Seeks compliance with law—The Philadelphia Metropolitan Carpenters District Council has approved a bylaw imposing a $100 fine on any affiliate that fails to file on time the financial and organizational reports required by the new Landrum-Griffin labor law.

the beauty here is more than skin deep



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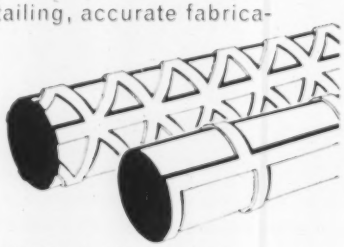

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attention were wages and work rules, which one speaker said operate to the serious "detriment of the general welfare by cutting away the foundations of the American dollar."

Mr. Stone suggested that an employer's best approach to the wage problem is to get his story on economics across to his workers and the public, be more active in nonpartisan politics, take a firmer bargaining position, show more "backbone" and take a strike if necessary.

No one had an answer, short of education, to union work rules. One speaker said they "are costing the public literally billions of dollars every year, and without reason or conceivable justification, are adding to the already too-high costs of production."

"There is nothing about this problem that reasonable men can't cure," said incoming NAM President Rudolph Bannow.

This plea for application of a rule of reason, consistent with the interests of the public, was about as close as the NAM congress came to any specific labor-management peace formula. But the session did succeed in defining and focusing public attention on these challenges:

- Labor-management relations have reached a crossroads at which individual freedom and national prosperity are at stake.
- The issues are vast, complex and difficult to solve.
- The public expects and demands from both management and labor responsible policies and actions that serve the interests of the nation as a whole.
- Labor and management cooperation is now more essential than ever before.

New Labor Law Suit Filed Against Carpenters Union

The first lawsuit against an international union under the fiduciary provisions of the new Landrum-Griffin labor reform bill has been filed against the United Brotherhood of Carpenters and Joiners of America.

The action was filed in Marion County Circuit Court, Indianapolis, Ind., by two members of Baltimore, Md., Local 101, who seek court appointed monitors to operate and investigate the union.

Most of the allegations cover incidents of purported corruption and mishandling of union funds previously raised in federal and state investigations.

Plaintiffs have asked for an accounting, restitution of funds, a trusteeship for the union, damages and appointment of a receiver.

Joint Board: An Achilles Heel

Carpenters and lathers jurisdictional dispute shows how a contractor can defeat the board's purpose

The National Labor Relations Board has again spotlighted one of the weaknesses of the construction industry's voluntary machinery for settling jurisdictional disputes peacefully.

The weakness is the ease with which a contractor can thwart the National Joint Board for the Settlement of Jurisdictional Disputes simply by staying beyond its reach.

The subject came up again in a Florida dispute between carpenters and lathers over the installation of primary metal furring for acoustical tile.

Beginning of the dispute was a work assignment by the contractor to members of the carpenters union. The lathers, claiming the work was theirs, protested and took the dispute to the National Joint Board, which upheld the lathers' claim.

The contractor, however, would not reassign the work, and the lathers, supported by the local building trades council, picketed the job. A general work stoppage resulted.

An unfair labor practice charge was then filed against the unions by the contractor. The NLRB, in a Section 10(k) proceeding, found that the lathers could not substantiate their claims by any labor contract provision or by any method recognized by the Taft-Hartley Act. It ordered a halt to the picketing, but cautioned that the result is not to be construed as a work assignment in favor of the carpenters.

Restating the law, the board explained its ruling this way:

"It is well established that an employer is free to make work assignments without being subject to pressures by a labor organization seeking the work for its members, unless the employer is failing to conform to an order or certification of the board determining the bargaining representatives for employees performing such work, or unless the employer is bound by an agreement to assign the work in dispute to other employees."

The lathers tried unsuccessfully to get the NLRB to back out of the proceeding and to force the contractor to fall back on the Joint Board as its exclusive remedy. Lathers' contention was that the contractor had submitted to the Joint Board procedure and that the NLRB should follow the Lee line of cases under which it seeks to promote voluntary settlements by refusing to entertain jurisdictional disputes where an "agreed upon" procedure for voluntary settlement exists.

The NLRB, however, refused to consider the contractor bound to the Joint Board even though it had submitted some information to the board at the time the dispute was heard. In the absence of any evidence as to the kind of information submitted or the circumstances of submission, the NLRB said, there is no "satisfactory evidence" of any agreement on a method for voluntary settlement.

Result: The Florida dispute was never resolved; the NLRB refused to determine the dispute on its merits; the action of the Joint Board became an empty gesture and the lathers were rendered powerless to enjoy the Joint Board award they received.

Sponsors of the Joint Board have tried to overcome this weakness in the present machinery in several ways. The board has established procedural rules urging contractors to recognize the board by stipulation and, in subletting work, to require their subcontractors to recognize the board. The AFL-CIO Building and Construction Trades Department has tried to bring more contractors into the board's orbit by requiring all local union councils and affiliates to insert in their collective bargaining agreements a provision making submission to and compliance with board procedure mandatory.

The department has even gone a step further. It has made the board procedure binding on all its affiliates.

But the problem posed by disinterested, apathetic, individualistic or recalcitrant contractors still remains.

Law's New Picketing Ban Tested in Teamster Case

The new labor law provision limiting the right of unions to engage in organizational picketing has already been put to use successfully.

A federal district court has issued a temporary injunction halting teamster picketing of Macattee Co., a strike-bound materials plant in Dallas.

The new provision, Section 8 (b) (7) (B), bans organizational picketing where a valid representation election has been held within 12 months.

Although the teamsters had been certified before they struck in May 1958, strike replacements voted the teamsters out in June.

OFFICIAL PROPOSALS

Bids: January 7, 1960

General Repairs
McKinley Toll Bridge

INVITATION FOR BIDS
CITY OF VENICE, ILLINOIS
CONTRACT NO. 1

Sealed proposals will be received by the City of Venice, Illinois, in the City Council Room in Venice, until 8:00 P.M. C.S.T. on the 7th day of January, 1960, at which time and place they will be publicly opened and read, for the furnishing of all labor, plant and materials, and performing all of the work necessary to complete Contract No. 1, General Repairs to the McKinley Toll Bridge over the Mississippi River between St. Louis, Missouri, and Venice, Illinois.

Contract documents including plans, specifications, proposal form, and form of contract may be seen at the office of the City Clerk, City of Venice, Illinois, or at the office of Hardesty & Hanover, Consulting Engineers, 101 Park Avenue, New York 17, N. Y., and copies of same may be secured at the office of Hardesty & Hanover, Consulting Engineers, upon deposit of fifteen dollars ($15.00) which deposit will be refunded upon the return by the bidders of all contract documents in good condition within ten days after date set for receipt of bids.

A proposal guarantee in the form of a proposal bond in the sum of ten percent (10%) of the amount of the bid or in the sum specified in Section 2.7 of the Standard Specifications for Road and Bridge Construction of the State of Illinois, adopted January 2, 1958, whichever is greater, made payable to the City Treasurer of the City of Venice, Illinois, written for a period of ninety (90) days, prepared on the form of bond attached hereto, and having as Surety such surety company or companies approved by the City, and authorized to transact business in the States where the work is located, must accompany each bid as a guarantee that the contract will be entered into if awarded.

Contract Bond in the sum of one hundred (100) percent of the contract price to cover performance, and fifty (50) percent of the contract price to cover the payment of all labor and materials used in the construction of the work will be required.

The City of Venice reserves the right to reject any or all bids or to accept the ones, that, in its judgment, will be for the best interest of the City of Venice, and to waive informalities.

CITY OF VENICE, ILLINOIS
By John E. Lee
Mayor

ATTEST:
William M. Ebersoldt
City Clerk

Bids: December 16, 1959

Narrows Bridge Piers

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:
Until 11 A.M. on Wednesday, December 2, 1959

For Narrows Bridge Contract No. NB-1B, Brooklyn Tower Pier. The bid must be accompanied by a deposit in the amount of $250,000.00

and

For Narrows Bridge Contract No. NB-1S, Staten Island Tower Pier. The bid must be accompanied by a deposit in the amount of $250,000.00.

Bidders may submit bids for either one or both of the above contracts.

Piers will be founded on open dredged caissons in The Narrows, New York Bay. Alternate design for Brooklyn pier provides shallow open dredged caisson supported on 36" diameter piles to rock.

Plans, specifications and contract documents may be purchased at the office of the Authority for $25.00, which will not be refunded.

** Opening Date for bids on Contract NB-1B and NB-1S has been changed from Dec. 2nd to Dec. 16th.*

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: December 18, 1959

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., eastern standard time on the 18th day of DECEMBER 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 333 Broadway, Albany 1, New York						
Saratoga (Rtes. 9 & 67)	FARC 59-168	Clifton Park-Round Lake, S.H. 1795; Mechanicville-Malta, S.H. 610; Malta-Saratoga, S.H. 611 Project F-U-639(17)	7.42	Asph. Conc. Pavt.	$100,000 Plans $5	$1,813,000
Saratoga (Rte. 9)	FARC 59-166	Clifton Park-Round Lake, S.H. 1795, 1795A Project F-FG-639(13)	1.84	Asph. Conc. Pavt. = 1.81 Miles; Misc. Work = 0.03 Mi.; 2 Brs. R.C. Twin Boxes 31' and 30'; 2 RR Sepa. Plate Girders 60' and 80'	$82,000 Plans $5	1,495,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Montgomery (Rte. 5)	FAC 59-20 FASH 59-25 FARC 59-162	City of Amsterdam: East-West Arterial Highway; Amsterdam East: Rte. 5 Conn. Amsterdam-Cranesville, S.H. 180 and Hoffman-Cranesville, S.H. 5126 Project F-U-349(16)	5.28	Asph. Conc. Type 1A Pavt. = 4.45 Miles; Grad. & Drain = 0.83 Mile; R.R. Sep. 2 Sp. Girder 161.4'	$220,000 Plans $5	$4,036,000
Oneida, Herkimer & Montgomery (Rtes. 5, 28 & 274)	R.C. 59-163	East Creek, S.H. 5159, Br. No. 1; Holland Patent-Frenchville, Pt. 2, S.H. 1546, Br. No. 1; Poland-Trenton, S.H. 5559, Br. No. 2	....	Clean & Paint 9 Bridges	$1,000 Plans $5	18,000
DISTRICT No. 3, E. F. TOWLSON, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
Cortland, Seneca, Oswego & Tompkins (Rtes. 13, 11, 89, 69, 392 & 414)	R.C. 59-164	Truxton-Dermyter, Pt. 1, S.H. 5141, Br. No. 1; Pulaski-Sandy Creek, S.H. 5275, Br. No. 1; Constantia-Cleveland, S.H. 1554, Br. No. 1; Parish-Camden, Pt. 1, S.H. 5226, Br. No. 1; Ithaca-Dryden, Pt. 1, S.H. 681, Br. No. 1 and Br. No. 2 and Seneca Falls Village, S.H. 5100, Bridge No. S-6	....	Clean & Paint 7 Bridges	$1,000 Plans $5	17,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 411 Van Buren Street, Watertown, New York						
Jefferson	FASS 59-27	Rives-U. S. 11, Co. Rd. 62 Project S-532(1)	2.13	Asph Conc. Type 1A Pavt. = 2.05 Miles Misc. Work = 0.08 Mi.	$923,000 Plans $5	415,000
St. Lawrence	S.H. 59-26	Horseshoe-Veterans Memorial Hospital	4.10	Bit. Double-Surf Treat. Pavement	$12,000 Plans $5	208,000
DISTRICT No. 8, K. G. RAUEN, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Westchester (Rte. 133)	R.C. 59-165	Mt. Kisco-Millwood, S.H. 587	1.60	Asph. Conc. Pavt.	$12,000 Plans $5	213,000
Westchester (Int. Tour. Rte. 487)	FITS 59-19	Interstate Route Conn. 520 (Cross Westchester Expressway (Elmsford Section) Project I-487-2(18)	3.12	Traffic Signs & Delineators	$5,000 Plans $5	89,000
DISTRICT No. 9, J. C. FREDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rtes. 17 & 26)	FARC 59-167	Binghamton City-Vestal Ave. Bi-Pass FAC 19-8; Court Street-Rte. 17 Conn. FAC 54-17, Brandywine Ave. Extension FAC 52-3 and Brandywine Ave. Extension Pt. 2 FAC 55-6, Brandywine Ave. Extension, FASH 52-8, Brandywine Ave. Extension Pt. 2 No. Chenango St. Intersect.) FASH 55-4 & Vestal S.H. 620 Project Nos U-496(15), U-1019(5)	5.41	Chain Link & R.O.W. Fencing	$7,000 Plans $5	122,000
Delaware (Rte. 97)	R.C. 59-143	Hancock-Long Eddy, Pt. 1, S.H. 5671, Br. No. 1	0.08	Bridge Repairs	$500 Plans $5	$9,500
DISTRICT No. 10, M. E. GOLT, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Kings, Nassau & Queens (Rtes. 27 & 27A)	FABEP 59-1 FAVWE 59-1	Belt Parkway (Cowanus Parkway to Whitestone Parkway); Van Wyck Expressway (Belt Parkway to Grand Central Parkway) Project U-777(6), U-1085(17)	34.92	Alum. Mall Barrier Rail, Fenc. & Misc. Work	$80,000 Plans $5	1,490,000
Nassau	FAWORE 59-1	Wantagh-Oyster Bay Expressway (Old Country Road, Co. Rd. No. 4 to Jericho Turnpike-Plainview Rd. S.H. 486), Contract No. 1 Project U-1110(2)	3.34 (7.36 Acc.)	9" Colored Conc. Con. Pavt. 2 @ 37' Wide = 3.15 Mi.; Misc. Work = 0.19 Mi. (Acc. = 5.22 Mi. Conc. Conc. Pavt. and 2.14 Mi. Asp. Conc. Pavt.); 5 Hy. Sepa. Comp. Beams 107.7', 107.1', 95.9', 48' & 131.5'; 1 Hy. Sep. R.C. Rigid Frame 98.3	$350,000 Plans $10	6,570,000
Queens (Int. Tour. Rte. 495)	FIHHE 59-2	Interstate Route Connection No. 514 (Horace Harding Expressway, Sect. I, Cont. 5; (Grand Central Parkway to Parsons Boulevard) Project I-495-1(34)	2.72	Roadside Development	$11,000 Plans $5	198,000
Queens (Int. Tour. Rte. 495)	FIHHE 59-3 FAHHE 59-4	Interstate Route Connection No. 514 (Horace Harding Expressway Section II; Horace Harding Expressway), Sect. II, Cont. 5 Project I-495-1(35), U-862(24)	2.72	Roadside Development	$11,000 Plans $5	198,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Engineering News-Record

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Its distribution among the contractors of any one state is in proportion to the number of contractors situated in that state. The Official Proposal Columns of *Engineering News-Record* offer precisely the same efficient service to municipalities, counties, state and federal departments in every section of the United States.

OFFICIAL PROPOSALS

Bids: December 29, 1959

General Construction of CHA Project Ill. 2-38

The Chicago Housing Authority invites properly qualified bidders to submit proposals for all labor and material required to complete the General Construction of CHA Project Ill. 2-38. The work includes one 13-story apartment building and related utility and site work, all generally in the vicinity of West Jackson Blvd., and South Campbell Ave.

Bids will be received until 2 p.m., local time on December 29, 1959 by mail or by hand in Room 1506 of the Chicago Housing Authority, 608 S. Dearborn St., Chicago 5, Ill., immediately after which time and at such place all bids will be publicly opened and read aloud.

Contract documents including plans and specifications may be obtained on or after November 24, 1959, by depositing $75.00 with Nicol & Nicol, Architects and Engineers, 23 East Jackson Blvd., Chicago 4, Ill.

Bids: December 29, 1959

Rehabilitation and Extension of Fire Alarm Wiring Systems

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUS TERMINAL
CONTRACT BT-160.001

Sealed proposals for the rehabilitation and extension of the fire alarm wiring systems at the Port Authority Bus Terminal at 40th Street and Eighth Avenue in New York City will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, December 29, 1959; at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $20.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman
New York, December 10, 1959

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5263) will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, January 28, 1960, for furnishing three (3) 50,000 horsepower, 240 rpm, vertical-shaft hydraulic turbines for Flaming Gorge Powerplant, Green Division, Utah-Wyoming, Colorado River Storage Project. Delivery is desired within 910 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, 25, Colorado. Floyd E. Dominy, Commissioner.

Sealed bids for airconditioning of postal areas, at the Federal office Building, Vesey Street (90 Church Street), New York, New York, will be received until 2:00 P.M., EST, January 4, 1960; and then publicly opened. Bidding material may be obtained only from the Business Service Center, General Services Administration, 250 Hudson Street, New York 13, N. Y.

OFFICIAL PROPOSALS

Bids: January 7, 1960

Toll Facility and Approach Work McKinley Toll Bridge

INVITATION FOR BIDS
CITY OF VENICE, ILLINOIS
CONTRACT NO. 2

Sealed proposals will be received by the City of Venice, Illinois, in the City Council Room in Venice, until 8:00 P.M. C.S.T. on the 7th day of January 1960, at which time and place they will be publicly opened and read, for the furnishing of all labor, plant and materials, and performing all of the work necessary to complete Contract No. 2, Toll Facility & Approach Work for the McKinley Toll Bridge over the Mississippi River between St. Louis, Missouri, and Venice, Illinois.

Contract documents including plans, specifications, proposal form, and form of contract may be seen at the office of the City Clerk, City of Venice, Illinois, or at the office of Hardesty & Hanover, Consulting Engineers, 101 Park Avenue, New York 17, New York, and copies of same may be secured at the office of Hardesty & Hanover, Consulting Engineers, upon deposit of fifteen dollars ($15.00) which deposit will be refunded upon the return by the bidders of all contract documents in good condition within ten days after date set for receipt of bids.

A proposal guarantee in the form of a proposal bond in the sum of ten percent (10%) of the amount of the bid or in the sum specified in Section 2.7 of the Standard Specifications for Road and Bridge Construction of the State of Illinois, adopted January 2, 1958, whichever is greater, made payable to the City Treasurer of the City of Venice, Illinois, written for a period of ninety (90) days prepared on the form of bond attached hereto, and having as Surety such surety company or companies approved by the City, and authorized to transact business in the States where the work is located, must accompany each bid as a guarantee that the contract will be entered into if awarded.

A Contract Bond in the sum of one hundred (100) percent of the contract price to cover performance, and fifty (50) percent of the contract price to cover the payment of all labor and materials used in the construction of the work will be required.

The City of Venice, reserves the right to reject any or all bids or to accept the ones, that, in its judgment, will be for the best interests of the City of Venice, and to waive informalities.

The CITY OF VENICE, ILLINOIS
By John E. Lee
Mayor

ATTEST
William M. Ebersoldt
City Clerk

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5298) will be received at Fargo, North Dakota, until 10 a.m., Central Standard Time, January 12, 1960, for furnishing labor and materials for Stage 02 and Stage 04 Additions to Bismarck Substation for 230 Kilovolt Terminal Facilities, Transmission Division, North Dakota, Missouri River Basin Project. Location near Bismarck, North Dakota. Principal items are 2,275 cu. yds. excavation; 145,000 pounds, furnishing and erecting steel structures; 2 breakers, installing 230-kilovolt 5,000 mva power circuit breakers; 4 switches, installing 230-kilovolt air switches; Lump sum, making modifications in existing service building; and other work. Completion time 335 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana; P. O. Box 1932, Fargo, North Dakota; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

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• POSITIONS VACANT

Civil Engineer (Structural): The City of Miami, Florida, is accepting applications from qualified applicants in order to conduct an unassembled-written examination on December 29th, 1959, in all major cities of the United States, for the purpose of establishing a register for the Civil Service classification of Civil Engineer II (Structural). The in-hiring rate of pay is $534 per month plus $25 per month cost of living bonus, with annual step increases up to $660 per month plus $25 per month cost of living bonus. Age 27-50 years. Education and experience requirements: BS Degree in engineering plus five (5) years progressive Civil Engineering experience, four of which must have been in the design of reinforced, prestressed concrete and steel structures—or—nine (9) years progressive experience in the work described above. Send summary of qualifications, experience and transcript of college credits to: Robert A. Richmond, Examining Supervisor, City of Miami Civil Service Office, 3318 Pan American Drive, Miami 33, Florida.

Graduate engineer with design experience in hydraulics, hydrology, flood control, hydroelectric and/or allied fields. Permanent employment with large midwestern consulting firm. Send resume and salary requirements to P-2710, Engineering News-Record.

Sales Engineer—to represent expanding pre-stressed concrete co. in Iowa. Excellent opportunity for right man. Send complete resume and salary requirements. All replies held in strictest confidence. Prestressed Concrete of Iowa, Inc. Box 822, Iowa Falls, Iowa.

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Wanted: Estimator and expeditor for long established general construction company operating in northeastern Ohio. Good opportunity for person who can qualify. Prefer man 30 to 45 years of age. Must have highest of references. P-3189, Engineering News-Record.

Estimator-Application Engineer—Experienced in estimating instrument packages. We are a progressive Chicago area engineering and construction firm, specializing in the sale of packaged control systems for industrial processes. For more details, send complete resume to Mr. Wecker, Panellit, Inc., 7401 North Hamlin, Skokie, Illinois.

Field Engineer-Graduate Civil Engineer for permanent position with Major Gas Transmission Company located in Midwest. Age to 35. Experience in office design, location and property surveys. Must travel. P-3191, Engineering News-Record.

Pipe Line Surveyor—Major Gas Transmission Company, headquarters in Midwest. Age to 35. Experience in pipe line location, office and field drafting necessary. P-3197, Engineering News-Record.

Assistant City Engineer—Anchorage, Alaska (pop. 35,000). $962-$1125. Administrative head of Engineering Division. Supervise prep. plans, specs and const. of streets, sewer and water facilities. Grad. Engr. with min. 5 yrs. increasingly responsible supervision and design experience. Regis. and some municipal exp. preferred. Apply City Engineer, Box 400, Anchorage, Alaska.

Traffic Engineer—Anchorage, Alaska (pop. 35,000). $790-$925. Resp. for all traffic work incl. signs, parking, meters, signals and studies under City Engr. B.S. Deg. and 5 years engrg. exp. with at least three in traffic. Apply City Engineer, Box 100, Anchorage, Alaska.

Design Engineers with a P.E. license granted by New York State and two years of professional experience in the design of bridges or related structures are being offered an opportunity to compete in a competitive civil service test, limited to New York State residents, on February 6, 1960, for the position of Senior Civil Engineer (Design) in the State Department of Public Works in Albany. Salary from $7818 to $9108 in five annual salary increases. For detailed announcements and applications write to Box 13, Recruitment Unit, New York State Dept. of Civil Service, The State Campus, Albany 1, N. Y.

Engineers And Draftsmen—experienced in water supply, water distribution, sewerage or sewage treatment plant design. Excellent opportunity with growing firm. Salary commensurate with ability. Paid vacations, holidays, hospitilization. Address reply with resume to: O'Brien & Gere, Consulting Engineers, 100 East Genesee Street, Syracuse 2, New York.

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Construction Executive: Top level only. 23 years experience all phases General Contracting, Gen. Supt., Project Eng., Cost Eng. & Purchasing on Highway & Heavy Industrial. Married; well educated with ability to handle complete projects—estimate to closing. PW-3089, Engineering News-Record.

• POSITIONS WANTED

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Structural Steel: 25 yrs. experience ranging from detailer thru chief draftsman. Prefer supervision or checker. PW-3143, Engineering News-Record.

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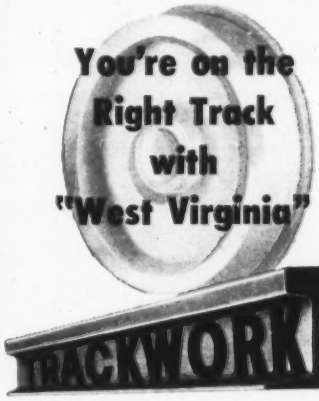

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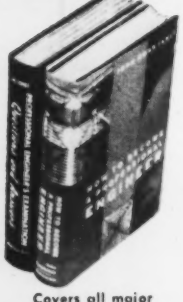

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Disaster to an Arch Dam

MALPASSET DAM, which failed in France last week with such tragic consequences, represented a long step forward in arch dam design. For its height of 200 ft, its section was one of the thinnest yet used, and the magnitude of the average theoretical stress considered in its design (680 psi) was on the high side of normal practice, though not unprecedented.

There is the possibility that the step forward was too long, and that therein lies the cause of failure. Yet one recoils in wishful disbelief from any such conclusion on the basis of the meager facts now available. Actually, an arch dam even more slender, in the design of which average theoretical stresses exceeding 1,400 psi were applied, has been service tested in France over the past several years with remarkably successful results. Moreover, both this dam and Malpasset came from the drawing boards of Andre Coyne, world authority on arch dams, who has more notable structures of this type to his credit than any engineer in history.

The failure of the Malpasset Dam is all the more shocking since there is no known previous instance in which an arch dam has been destroyed. Abutments on occasion have washed out, causing a disaster when the reservoir was released, but in each case the arch itself remained standing. Abutment trouble could, in fact, be a contributing cause at Malpasset. So, too, could a lack of adequate spillway and outlet capacity to take care of the runoff from the worst storm on record in the region. And there is always the chance of some construction oversight that provided a weak spot in the structure.

Until more facts are known, however, there is little basis even for speculation. While waiting for the facts there should be no thought that arch dams as such are discredited by this one failure, catastrophic though it was. By the same token, there is every reason to await the facts with an impatience born of a desire to find the cause of the failure so that future designs may benefit from the lessons learned.

A Going Concern

THE LATEST NEWSLETTER of Consulting Engineers Council includes a report by President Ralph Wescott proclaiming the 3½-year-old federation of consulting engineering associations "a going organization." It is that.

Because it has moved slowly from its small beginnings in July, 1956, CEC has looked at times as if it might never get off the ground. But the original ten-member association has now grown to 27, and the present prospect is for steady growth, not alone in size but also in activities and influence.

Purpose of this organization is, of course, to influence: to influence economic well-being of consulting engineers, to influence the public's image of the consultant, to influence standards of private engineering practice, and to influence—in the process—the status of all engineers. It is a group organized in the self-interest of its members, as most groups are. These interests appear partly professional and partly business, but wholly consistent with the interests of the public which consulting engineers serve.

The council takes a part in profession-wide activities through Engineers Joint Council. It makes its members' business views known through membership in the U. S. Chamber of Commerce. It has a representative in Washington. It has been influential in making available to its members professional liability insurance at increasingly more favorable rates. And it is working on a manual of practice, on a listing of its members by specialty and on forms of contract documents.

There are many problems of concern specifically to the engineer in private practice—whether he has a sole proprietorship or an organization employing hundreds of engineers. Before formation of the Consulting Engineers Council there was no national organization concerned with these problems open to all consulting engineers. The American Institute of Consulting Engineers has existed for 50 years, doing much good for its members and helping to create a generally fine public image of consultants. But AICE is a rather exclusive organization, "limited to individuals who have distinguished themselves as engineering consultants, and who enjoy a favorable reputation for the successful performance of important professional tasks."

Consulting Engineers Council, therefore, has a real job to do for the many consulting engineers across the country whom it represents and will come to represent. It begins to look encouragingly as if this still young organization will be equal to the task.

Ike Should See Bhakra

COMMUNIST PROPAGANDA in India, it is reported, has been claiming Bhakra Dam as a Russian achievement, inspired by Soviet example and benefiting from Soviet know-how. This flagrant disregard of the facts is made easier by the stream of Soviet, Chinese and other Communist bigwigs who have visited the dam and had their pictures taken with Mr. Nehru.

American consultants guided the design of Bhakra Dam, an American is supervising its construction and more than a hundred American engineers and construction men have worked on it with the Indians. A visit to the dam by President Eisenhower could help to publicize these facts to the Indian public. Failing that, the President's plane could at least fly over Bhakra, following which he could have his picture taken with Mr. Nehru in New Delhi looking at a model of the dam. Communist propaganda needs to be countered with facts.

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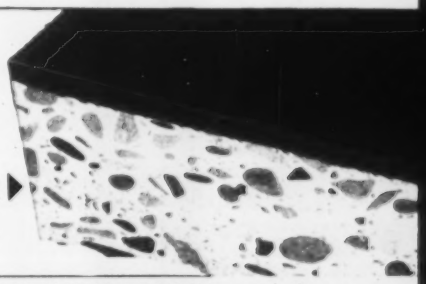

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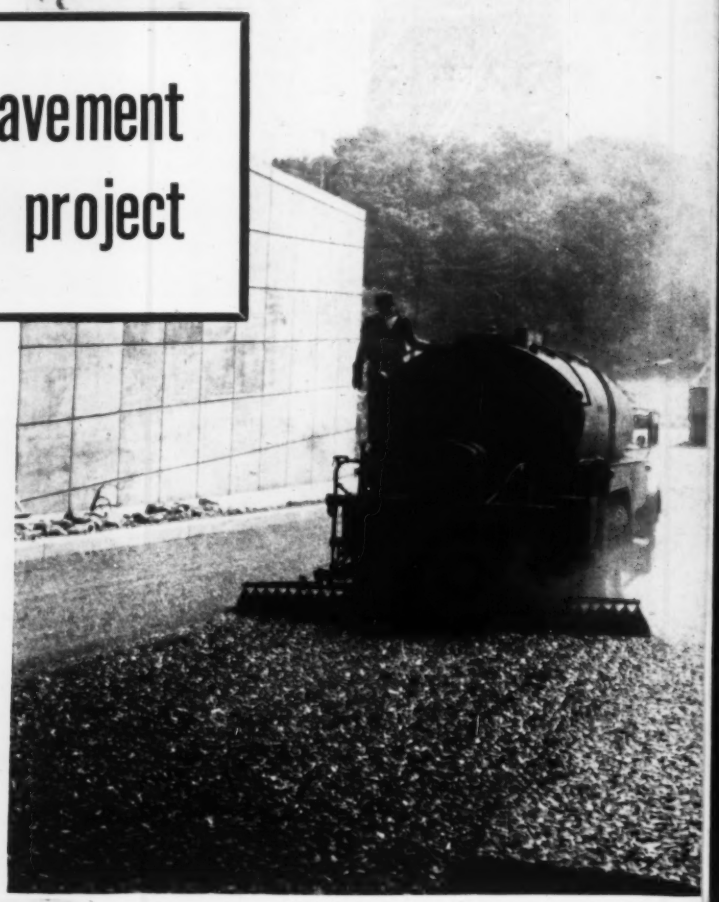

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Applying Texaco Asphalt in construction of the Asphalt (Penetration) Macadam base course. ▶

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The Port of New York Authority is adding a lower deck to the George Washington Bridge over the Hudson River. An important phase of the project has been the extensive revamping of the plazas at the New Jersey and New York ends of the span.

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